

**For Reference**

---


**NOT TO BE TAKEN FROM THIS ROOM**



Ex LIBRIS  
UNIVERSITATIS  
ALBERTAENSIS







Digitized by the Internet Archive  
in 2023 with funding from  
University of Alberta Library

<https://archive.org/details/Samoil1971>

THE UNIVERSITY OF ALBERTA

POWER TOBOGGANS: LOCATION OF USE

BY



IRIS MARIE SAMOIL

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

DEPARTMENT OF GEOGRAPHY

EDMONTON, ALBERTA

OCTOBER, 1971





## Abstract

Outdoor recreational research may concentrate either upon the recreationists at the recreation site or upon the movement of the recreationists from their base to the site. The author feels strongly that, in this increasingly urban society, it is necessary to understand the nature and movements of the urban-based recreationist. Once this is understood adequate facilities can then be provided to accommodate the recreational demands of the large urban population.

A survey, indicating the demand and use patterns of the power tobogganing urban dweller, was carried out for the 1968-69 winter season in Edmonton, Alberta. The full impact of this recreational vehicle, because of its recent development and increasing popularity, has yet to be realized and understood.

The study established that power tobogganing was primarily a familial group activity. Weekend and holiday use of the vehicle was concentrated within a 25 mile radius of the base. It was found that there was some relationship between the respondents' socio-economic characteristics and their acceptance of controlled use of public parks. It only remains for the responsible agencies to develop a policy which will balance public demand for individual enjoyment with the conservation of the natural environment.





## ACKNOWLEDGEMENTS

The author gratefully acknowledges the supervision of O.F.G. Sitwell. Without his patience and supervision, the thesis might not have been completed.



## TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF MAPS	ix
INTRODUCTION	x
CHAPTER	
I.    THE USE OF POWER TOBOGGANS	1
Experience	1
Season of Use	2
Site Selection for Use	6
Activity Preference	14
Snow and Temperature Preferences	18
II.   SOCIAL CHARACTERISTICS OF THE SAMPLE POPULATION	21
Sample Composition	21
Attitudes	29
III.  PUBLIC POLICIES AND REGULATIONS	37
National Parks	38
Provincial Parks	40
Municipal Parks	42
IV.  CONCLUSION	45
BIBLIOGRAPHY	50





## APPENDICES

I. The Questionnaire	52
II. The Power Toboggan	53
III. Tabulated Responses	57





## LIST OF TABLES

Page

I. The Response	xxvi
II. Frequency of Participation	5
III. Distances Travelled by Car for Power Tobogganing	11
IV. Distances Travelled and Willing to Travel by Area	12
V. Terrain Preferences	14
VI. Power Tobogganing Activities	15
VII. Type of Group	16
VIII. Size of Party by Age Groups	17
IX. Preferred Depth of Snow	18
X. Preferred Snow Type	19
XI. Age of Toboggan Owners	22
XII. Family Size	23
XIII. Childhood Upbringing	25
XIV. Education	26
XV. Occupations	27
XVI. Family Income	28
XVII. Park Use; Preferences and Policy	29
XVIII. Preferred Type of Use in Parks	30
XIX. Park Use Preferences, Restricted and Not Restricted	32
XX. Cross-Relationships	35
XXI. Description of Trails and Areas	39



LIST OF FIGURES	Page
Figure 1. Period of Ownership of Power Toboggans (1969)	2
Figure 2. Season of Use	3
Figure 3. Weekly Use Pattern	3
Figure 4. Location of Use	7
Figure 5. Factors Influencing Site Selection	8
Figure 6. Familiarity with Recreational Area	9
Figure 7. Maximum and Minimum Temperatures	20





## LIST OF MAPS

Page

Map 1.	Location of National and Provincial Parks for Power Tobogganing in Alberta	41
Map 2.	Edmonton--Power Tobogganing--Permitted Areas--1968-69	43





## INTRODUCTION

In general terms this is a thesis in outdoor recreation. In particular, it is a study of the power toboggan as an outdoor recreational vehicle. This study was designed to establish the location, frequency, and type of recreational use made of the power toboggan, and also to identify the socio-economic characteristics of those who own this vehicle for recreational purposes. To achieve these ends owners of power toboggans living in Edmonton in 1969 were taken as a case study.

## RESEARCH PERSPECTIVE

Within the scope of outdoor recreational research two perspectives of analysis are possible. A study may concentrate either on the recreationists at the recreation site, or it may concentrate on the movement of the recreationists from their urban base to the site. The most frequently used method is the former. The popularity of the first method of analysis may be explained by (i) the historical emphasis in geography on the physiographic uniqueness of an area, (ii) the availability of research funds from government agencies as administrators of public lands, and (iii) the ease of sampling based on a market passing through a fixed point.<sup>1</sup>

The second perspective, that of concentrating on the movements of the recreationists from their urban base to the recreational

---

<sup>1</sup>Colin K. Campbell, An Analysis of the Relationship Between the Urban Based Skier and His Recreational Hinterland, M.A. Thesis, (unpublished), University of British Columbia, 1967, pp. 1-2.



site is as valid and important as the former. By accepting the city as the generator of recreational demand, the spatial relationship between the city and the recreational area may then be studied, especially as a consequence of patterns of movement exhibited by the users. In that way this perspective will relate urbanization to the growing demand for recreation and will indicate the impact of an urban area on the region which surrounds it.

This is essentially the approach which the Ontario "Design for Development" takes. Ontario has recognized the responsibility of ensuring that recreational values be maintained or built into the areas where people actually live. Each person is assumed to have a zonal pattern of recreational travel. This consists of a nearby area of daily involvement, an intermediate zone used on day trips and weekends, and an outer zone used for vacations. The regional approach of the "Design for Development" may yield a satisfactory solution to this problem by providing a means "whereby coordination of monolithic departments may take place at the regional or problem-solving level."<sup>2</sup> What is provided essentially is a comprehensiveness of planning not usually permitted within the territorial limits of local government; that is, cooperation without reference to purpose. Ideally, this will result in a coordination of parks and outdoor recreation at the regional level.

---

<sup>2</sup>E. G. Pleva, "Ontario's Parks," The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. I, University of Calgary, 1968, p. 443.



The National and Provincial Parks Association of Canada (based in Toronto) also stated the need for such regional planning methods. At the summation of the Canadian National Parks: Today and Tomorrow Conference in Calgary they stressed the "current national need for an integrated national outdoor recreational planning framework within which to provide guidelines and coordination of federal, provincial, and regional park and recreational planning efforts."<sup>3</sup>

This need for coordination in recreational planning has arisen from the many ramifications of industrialization and urbanization. An increasingly urbanized society, such as Canada, with its changing social and economic structure has, as a consequence of these changes, created a society with rapidly increasing mobility, more leisure or freely disposable time, and rising expectations for various passive and active leisure activities.<sup>4</sup> Inherent in these characteristics are the quantitative demands for more recreational space. This quantitative impact is now threatening the qualitative character of the leisure environment. Thus, the cities and the people within them are now being recognized as the generators of recreational demand.<sup>5</sup>

---

<sup>3</sup>National and Provincial Parks Association of Canada, "Summation and Resolution," in The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. II, University of Calgary, 1968, pp. 986-987.

<sup>4</sup>H. Peter Oberlander, "Urbanization and Canada's National Parks," in The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. I, 1968, pp. 292-305.

<sup>5</sup>Colin K. Campbell, op. cit., p. 2; and Roy Wolfe, Parameters of Recreational Travel in Ontario, Research Paper No. RB 111, Ontario Department of Highways, Downsview, 1966, 37 pp.





Having spent the summer of 1967 in the employ of the Alberta Provincial Parks Planning Branch, the author concludes that research for parks should be determined according to park-planning and management needs. Planning and management provide the essential perspectives that define research needs and suggest priorities for various lines of investigation. It was during the summer of 1967 that the implications of the growing popularity of power toboggans for park policy first came into prominence.

The power toboggan is now, without doubt, the most popular winter recreational vehicle in North America. Ownership and the subsequent use of power toboggans have both increased at a tremendous rate within the past ten years, with exceptional growth evident during 1964-68. In illustration of this growth, we may consider the case of Bombardier of Valcourt, Quebec, which manufactured 250 units in 1959. In each year thereafter total production more than doubled.<sup>6</sup> Also, from three or four original independent producers, the field has now grown to more than 40 manufacturers of power toboggans (i.e., snowmobiles of one- or two-passenger design). Total North American power toboggan production for 1967 was estimated to have been between 160,000 and 180,000 units.<sup>7</sup> The International Snowmobile Industry Association stated that industry sales totalled 285,000 units in the

---

<sup>6</sup>JOAN W. HETHRINGTON, The Snowmobile: What Makes It Go, What Makes It Grow, an address to the Society of Automotive Engineers, Detroit, Nov. 1967, (pamphlet) p. 1.

<sup>7</sup>Loc. cit.



1968-69 season. This is apparently an increase of more than 30 per cent over the number of units sold in the previous year.<sup>8</sup>

At this point it is necessary to indicate that the terms "power toboggan" and "snowmobile" are used synonymously throughout this study, and refer to vehicles of the one- or two-passenger design (see Appendix II).

The impact of power toboggans for commercial use is not without significance. These machines are used for (i) running trap lines, (ii) commercial fishing, (iii) surveying, (iv) Fish and Game control, and (v) the transportation of men and materials to and from what would otherwise be inaccessible areas under Canadian winter conditions. It is generally assumed however, that the majority are purchased for winter sport and recreation,<sup>9</sup> and it is with the latter group that this study is concerned.

#### RELEVANT LITERATURE

Because of the novelty of the recreational vehicle there are no previous guidelines for either a research approach or for the collection of data. Most of the writings completed on power toboggans are largely descriptive of the growing interest in this activity and

---

<sup>8</sup>Lowell Swenson, The Snowmobile Industry's Antidote for Growing Pains, a paper presented at the Field and Stream Seminar on Snowmobiling, Minneapolis, Minnesota, June 1969, mimeographed copy, p. 1.

<sup>9</sup>Patrick K. Snook, "Snowmobile Buyer's Guide," Field and Stream, Nov. 1968, Vol. LXXIII, No. 7, p. 90.





are found in popular, non-academic journals.<sup>10</sup> In such articles there is little or no concern with the compilation and analysis of data; rather, emphasis is on human interest and promotion of the new sport.

The serious objective information that exists on the use of power toboggans is both scattered and difficult to find. It is possible, therefore, to review only three reports which deal with the power toboggan and its ecological implications. In addition to these are some data compiled by Gordon Taylor, Director of Research and Planning for Manitoba's Department of Tourism and Recreation, on the distribution of power toboggans in Canada. There is also a report by H. Gavin on the 1970 International Snowmobile Congress in Duluth, Minnesota.<sup>11</sup>

A report by Baldwin<sup>12</sup> was prepared under the auspices of the American Conservation Foundation and was apparently issued in February, 1969. However, no response to this author's inquiries was forthcoming from the Foundation and it is therefore impossible to review the report. There was a similar lack of response from the Lake Central and Northeast Regional Offices of the Bureau of Outdoor

---

<sup>10</sup>For example: Snook, op. cit., p. 48; "Snowmobiling--Newest Sport," The Albertan Motorist, Jan.-Feb. 1969, p. 5; and other journals such as Popular Mechanics, Time, Outdoor Life, and Popular Science.

<sup>11</sup>The Proceedings of the Congress were not available to the author.

<sup>12</sup>Malcolm F. Baldwin, The Snowmobile and Environmental Quality, The Conservation Foundation, Washington, Feb. 1969.



Recreation who helped to sponsor the International Snowmobile Conference in Albany, New York, in May, 1969. Mention is made of these two reports to indicate the concern expressed and action being taken by responsible agencies in an attempt to solve the problems created by the increasing popularity of power toboggans. It is unfortunate for the author however, that official bodies are reluctant to divulge such findings yet.

The following national information was provided by personal communication with G. D. Taylor of the Manitoba Department of Tourism and Recreation. Although the information is not in report form, it nevertheless indicates the distribution and use of power toboggans in Canada. A survey of adults in 1,000 Canadian households in 1968 revealed that 5 per cent participated in power tobogganing as an activity. The breakdown is as follows:

British Columbia	less than 1	per cent of households
Prairie cities	1	"
Prairies (other than cities)	11	"
Toronto-Hamilton	2	"
North and east Ontario	7	"
Rest of Ontario	6	"
Montreal	5	"
Rest of Quebec	7	"
Atlantic Provinces	4	"

From a survey of Canadian households in 1968, 118,000 owned a snowmobile, that is, 2.3 per cent of the households.<sup>13</sup>

---

<sup>13</sup>Pers. comm., G.D. Taylor, Director, Research and Planning Branch, Dept. of Tourism and Recreation, Manitoba, July 21, 1969.



Gavin's report on the 1970 International Snowmobile Congress provides a satisfactory introduction to the realm of the power toboggan.<sup>14</sup> In his report Gavin presents the "good" and the "bad" aspects of snowmobiling. Firstly, he discusses the "good" aspects, citing the industrial and commercial contribution of the snowmobile industry. Manufacturing, he points out, is centered in small towns where emphasis is placed on improving machine performance and safety. Secondly, he evaluates the economic impact of the manufacture of subsidiary equipment; clothing, winter camping gear, winterization of former summer homes, and production of safety equipment. Thirdly, there follows a discussion of the social and recreational aspects of the snowmobile. These are favorable aspects of the sport for they encourage social intercourse through club organizations, and provide a form of winter recreation on a family basis, in addition to extending the outdoor activity season.

The "bad" aspects of snowmobiling number five; four are concerned with the deterioration of the environment and the fifth is safety. Within the urban environment noise and other disadvantages of uncontrolled use of open land present an unpleasant problem. In extra-urban areas the problem is no longer one primarily of noise, but of physical damage to property, game and domestic animals. The snowmobile makes formerly isolated areas accessible at a time when control may be extremely difficult. Also, the harmony and ecology of

---

<sup>14</sup>H.C.R. Gavin, (Regional Coordination, Recreation Sector, Canada Land Inventory), The 1970 International Snowmobile Congress, Duluth, Minnesota, Feb. 9-11, 1970, mimeographed report, circa 1970, 9 pp.





an area may be disturbed by tree cutting, by the accumulation of slack debris from trail building, by a profusion of garbage as well as by the noise level of the machine. As in the urban situation, a conflict of use arises in the winter, but here between hunters and fishermen. Although both make use of the machine, each tends to resent the misuse by others in their activity areas.

Safety hazards are of course, serious problems of snowmobile use. The activity is dangerous not only in itself through carelessness which may result in falling through ice, collisions, or entanglement in the machine, but it may also be dangerous to other parties who share the area of use. Snowmobiles and other motorized vehicles have not proven to be compatible forms of traffic.<sup>15</sup>

Gavin's general conclusion is that legislators and control agencies have been slow to realize the consequences of the rapid increase in the number of snowmobiles. Controls tend to be non-restrictive, that is, there are strict non-use areas rather than strict use-areas. These are among the more controversial aspects of snowmobile use as admitted by the 1970 Congress.

---

<sup>15</sup>Canada Safety Council, Snowmobile Accidents in Canada (fatal accidents and fatalities), Winter of 1969-70, October 1970, Ottawa, mimeographed copy of a preliminary report, p. 2. There is some justification to Gavin's statement in that of the 93 snowmobile fatalities of the 1969-70 winter season, 46 or 79% were the result of collision with cars, trucks, and buses. Only one death resulted from a collision between two snowmobiles. Five fatalities (9%) were the result of collisions with trains while travelling on or alongside the tracks.



From the official administrative viewpoint, three reports are available for review. The first report, Mountain National Parks: Some Aspects of Winter Use 1967-68,<sup>16</sup> is in two parts; Part I is a study of snowmobile use while Part II, which does not concern us here, deals with ski area use and capacity. The aim of the snowmobile study was to gather data on the use of snowmobiles in Banff, Jasper, Kootenay, and Yoho National Parks. Park gate attendants distributed short mail-back questionnaires to vehicle drivers entering the park with power toboggans. A total of 548 questionnaires were distributed. The return was 105 or 19 per cent.

The survey showed that, for a sample size of 105, the average number of people in each party was 9.52, which indicates that power tobogganing in National Parks is an organized group sport. Because gate distribution records were not adequately maintained at three National Parks, conclusions on the season of use were based on the Banff data. These indicated February and March as the most popular months of use.

The survey also established the origin of all power tobogganing parties. Eighty-five per cent were from Alberta, 13 per cent from British Columbia, and 2 per cent from Saskatchewan. Sixty per cent of the parties were on one-day trips. The average length of ownership of the power toboggan was established at two years.

---

<sup>16</sup>J. W. Thorsell, Mountain National Parks: Some Aspects of Winter Use 1967-68, Recreational Research Report No. 38, National Parks Service--Planning, Ottawa, May 1968, 27 pp.



An appendix consisting of a list of objections to the use of power toboggans in National Parks was included in the report to give balance to the study. An official objection on the use of power toboggans in National Parks was submitted by the Canadian Youth Hostels Association on behalf of their membership.<sup>17</sup> Their submission outlines the attitudes of conservationists in general towards the use of power toboggans in National Parks, and for that reason the following objections are presented. Firstly, motorized vehicles are forbidden from trails in all National Parks in the summer to prevent destruction of the wilderness. To permit power toboggans to use National Parks is to contravene existing park policy. Secondly, power toboggans disturb and harass the wildlife. Thirdly, there is the physical problem of policing and effectively controlling trail use.

The second report is on the Use of Snowmobiles for Hunting and Trapping in Alaska by Karl Schneider, Alaskan game biologist.<sup>18</sup> The results of this report should dispel at least some of the fears of conservationists. One of its conclusions is that "caribou movements did not appear to be greatly influenced in any of the areas of

---

<sup>17</sup>G. Grant O'Brien, "Power Toboggans in National Parks," The Pathfinder, Vol. 4, No. 4, June 1969, pp. 1-2, (CYHA, Northwest Region, Edmonton), and J. Thorsell, op. cit., Appendix A, pp. 20-22.

<sup>18</sup>Karl Schneider, The Use of Snowmachines for Hunting and Trapping in Alaska, Alaskan Dept. of Fish and Game, Juneau, mimeographed report, circa 1967, 5 pp.





heavy snowmachine activity."<sup>19</sup> It was noted that caribou avoided the immediate area where hunters were concentrated in large numbers. When only a few hunters were found in a given area the caribou continued to move through it, apparently being unafraid of them. It was found that although the snowmobile can alter the distribution and mobility of the hunter, the caribou pay little attention to the machine itself. Concerning the possibility of an over-kill of caribou, Schneider concludes that "it seems unlikely that the snow-machine will solve the problem of achieving an adequate harvest of caribou."<sup>20</sup>

The influence of snowmobiles on the moose harvest was more difficult to assess but it was nonetheless concluded that, while an increase in kill would probably occur, there was no indication of a substantial increase in harvest as a result of snowmachine use. "On the whole, snowmachines are responsible for fuller utilization of the economic and recreational potential of Alaska's game by the people. As such, their benefits far outweigh their disadvantages at the present time."<sup>21</sup>

The next report, an investigation of the impact of the snowmobile, was conducted by the the Department of Wildlife Ecology,

---

<sup>19</sup>Op. cit., p. 1.

<sup>20</sup>Op. cit., p. 2.

<sup>21</sup>Op. cit., p. 5.



University of Wisconsin, and the Research Council of Alberta.<sup>22</sup>

The object of the study was coyote hunting near Westlock, Alberta, in 1967-68. Four major methods of hunting coyotes were studied: rifles only; dogs only; snowmobiles only; and rifles, dogs, and snowmobiles. Hunters using snowmobiles only (to run down the coyote and shotgun or club it to death) had both the highest kill per day per man and fewest man-hours per kill. The study analyzes the composition of the kill and relates it to the method used. Farmers' attitudes towards the coyotes were also studied. The opinions of farmers, sportsmen, and Alberta Fish and Wildlife Division personnel concerning the use of snowmobiles, trailhounds and greyhounds in coyote hunting were discussed. Sportsmen and game department personnel were more apt to oppose the use of snowmobiles, trailhounds and greyhounds in the hunting of coyotes than were the others. Although their reasons were varied, three major objections emerged. Firstly, there were those who felt that since the use of snowmobiles began there had been a decline in the coyote population. Secondly, some felt that the use of dogs and snowmobiles is unnecessarily cruel. Thirdly, in the opinion of many, the use of snowmobiles in hunting is unsportsmanlike.

---

<sup>22</sup>Stephen P. Wetmore, Carl Nellis, and Lloyd Kieth, A Study of Winter Coyote Hunting With the Use of Snowmobiles, Wildlife Technical Bulletin, No. 2, Government of Alberta, Dept. of Lands and Forests, Fish and Wildlife Division, circa, 1969, 22 pp. plus appendices.



## OBJECTIVES

As yet there is a paucity of basic data on the recreational demand and use patterns of power toboggans in North America. It is the purpose of this study to indicate the demand and use patterns in the Edmonton region in Alberta. This study will attempt to determine, with respect to the recreational use of power toboggans, (i) the location of use, (ii) the season and frequency of use, (iii) the type of use (specific activity engaged in), and (iv) some sociological and economic characteristics of power toboggan owners. The roles of concerned public agencies of the levels of government will then be examined, and the responsibilities for providing a comprehensive, well regulated program of use will then be discussed. The prime objective of the study is, therefore, to focus on Edmonton as a generator of recreational demand and to gather basic information concerning an increasingly popular but controversial activity: power tobogganing.

## METHODOLOGY

A questionnaire was designed, power toboggan owners identified and the questionnaire issued to them, and the responses collected and tabulated. The problem of identifying power toboggan owners was less difficult than was expected. Permission was granted by the Minister of Highways to search the files kept on the licencing of power toboggans. From these files Edmonton addresses of owners were withdrawn. It was necessary to eliminate government licences as well as licences which were issued to various firms and businesses.





The resulting list was assumed to be of individuals who owned power toboggans exclusively for recreational purposes. The only exception found to this assumption was a vehicle used both for recreation and transportation. The assumption may therefore be considered a valid one.

A total of 2242 licences were withdrawn from the files. Of these, 81 were issued to Federal and Provincial departments, and 611 were issued to contractors, business firms, and rural route addresses. After these eliminations the number was reduced to 1550. The survey list of power toboggan owners was established by drawing a random sample of 150 from the total of 1550.<sup>23</sup>

### Survey Techniques

The survey was originally planned as a mailed questionnaire survey. For this reason special emphasis was placed upon the design of the questionnaire (Appendix I). Eventually the handout method was selected as an alternative. There were two reasons for this decision. Firstly, mailed questionnaire surveys are notorious for their poor responses. Generally it is assumed that the personal-interview type of survey provides the most realistic replies to the questions asked. In addition, they are more complete in the number of returns. Such a technique, however, would not require the type of questionnaire which had at first been developed. Furthermore, there was a limited period of time for the study and it was felt

---

<sup>23</sup>An APL program from the University of Alberta's Statpack for the IBM 360/67 computer was used to obtain a random sample.



that the time required for interviewing all the members of the sample was greater than was available. The handout method permitted the use of the questionnaire without alteration and provided personal contacts although not personal interviews.

Secondly, it was assumed that by personally picking up the questionnaires, prompt replies would be encouraged. This would prevent the trickling in of late responses after analysis had already been initiated.

During the first phase, contact was attempted without prior arrangement. However, it was necessary in some cases to make numerous telephone calls at various hours of the day to establish contact and to arrange for picking up the questionnaire.

The survey was begun in mid-June, 1969 and continued throughout July. Thus, there was a time interval of about 3 months for the recreationists since their recreational experience. Naturally, one could be skeptical about the accuracy and reliability of recall of a recreational experience on the part of a respondent. However, it has been noted in a study by Shaffer and Hamilton that the attitudes and impressions surrounding a recreational experience do not change noticeably over a 3- to 5-month time interval immediately following the experience.<sup>24</sup> These authors, too, compared the personal-interview, and the delayed mail questionnaire. Their conclusions were that the delayed mail survey, conducted three months after the recreational

---

<sup>24</sup>Elwood L. Shaffer and John F. Hamilton, A Comparison of Four Survey Techniques Used in Outdoor Recreation Research, U.S. Forest Research Paper NE-86, 1967, p. 16.



experience gets the best results for the least cost. They also noted the very close similarities between personal-interview and delayed mail results. It was therefore assumed that the replies in this survey, in spite of the time interval, would be accurate and reliable.

### The Response

The total response to the survey numbered 91 out of 150. However, for the analysis in this thesis the working response will vary with each question according to the number of replies for each question. The maximum response is 85, in that this is the number of questionnaires that were actually returned. Six of the 91 indicated that they had sold their power toboggan and were therefore unable to reply to the questionnaire.

TABLE I - THE RESPONSE

---

Total Response .....	91	(60.7%)
Returned Questionnaires .....	85	(56.7%)
Vehicle Sold .....	6	( 4.0%)
Non-Response .....	59	(39.3%)
Non-Response to Questionnaire ....	20	(13.3%)
No Contact .....	21	(14.0%)
Moved from Address .....	18	(12.0%)
Initial Sample Size .....	150	(100.0%)

---





The method of the handout questionnaire permits the nature of the non-response to be at least superficially investigated. In this study the non-response numbered 59 out of a sample of 150. In actuality, only 20 refused to respond to the questionnaire. Of the remainder, 21 could not be contacted and 18 had moved to another place of residence. Those who could not be contacted appear to fall into two categories; either they were on extended vacations or, in the case of married couples, both work and/or spend little time at home. The first assumption is based on information obtained either from neighbors or from observations on the state of the grounds. For the latter assumption, the appearance of the house and grounds indicated that the house was being presently occupied but no answer was received to repeated visits and telephone calls.

### Analysis of Data

Because the number of responses to the questionnaire was not excessively large (85), the author did not code the questionnaires for transfer to data processing cards. Instead the data obtained were manually tabulated and subjected to elementary statistical analysis. Whenever necessary and possible, data were typed into the computer and descriptive statistics were obtained from existing stored programs.<sup>25</sup>

---

<sup>25</sup>APL Statpack for IBM 360/67 Computer, University of Alberta.



The analysis will be presented in three chapters. Chapter I will describe the driving experience of the owner, the season and frequency of use of the vehicle, the areas of use, snow and temperature preferences, and lastly, the specific activity preference. Chapter II will describe the social composition of the sample and attempt an analysis of their respective attitudes towards policies for power tobogganing in general. Chapter III presents the policies towards, and controls of, power-tobogganing use on public lands by government agencies. For a brief discussion of the power toboggan the reader is referred to Appendix II.



## CHAPTER I

### THE USE OF POWER TOBOGGANS

This chapter describes power tobogganing as a recreational activity for a sample of Edmontonians. It is divided into five parts. The first part describes the driving experience of the power tobogganers. The second describes the season and frequency of use of the vehicle. The third identifies the areas of use and factors which influence site selection. The fourth part deals with the specific activity preferences, and the fifth deals with the snow and temperature preferences.

#### EXPERIENCE

The experience of the power tobogganer measured in years of ownership of the vehicle averages 2.7 years. A sharp breaking point between the fourth and fifth years of ownership is indicated in Figure 1. This corresponds to the 1964-65 season when the rapid increase in the use of power toboggans began. A study by Thorsell for the Canadian National Parks Service confirms the 1964-65 winter season as the year when accelerated use began.<sup>1</sup> A further noticeable increase in use came in the 1966-67 winter season.

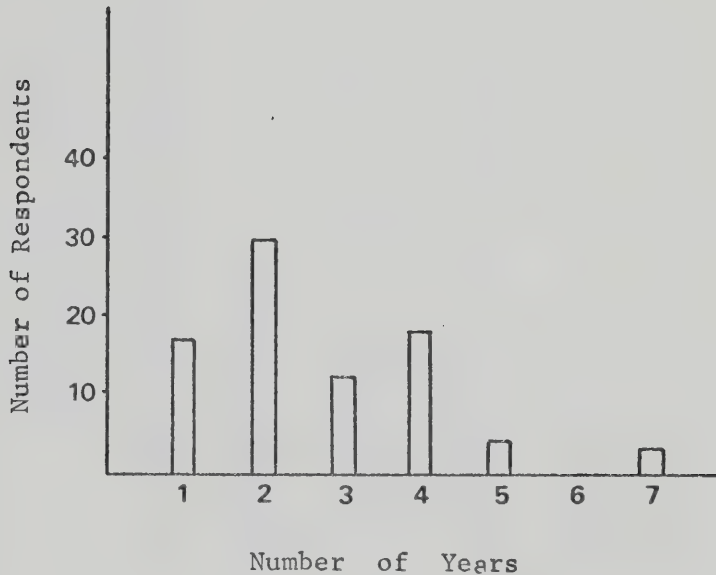
---

<sup>1</sup>J.W. Thorsell, Mountain National Parks: Some Aspects of Winter Use 1967-68, Recreational Research Report No. 38, National Parks Service--Planning, Ottawa, May 1968, p. 5.





Fig. 1. Period of Ownership of Power Toboggans (1969)



#### SEASON OF USE

Because the power toboggan is an over snow vehicle the season of use must be restricted to periods when snow covers the ground. Owners were asked during which winter months (November to April) they participated in this outdoor sport. Figure 2 shows that the period from December to March (inclusive) can be identified as the season of maximum use. These are the truly winter months in Alberta.

Power tobogganing appears to be a recreational activity which is restricted primarily to weekend and holiday use. Figure 3 indicates that the number of respondents who use their vehicles on



Fig. 2. Season of Use

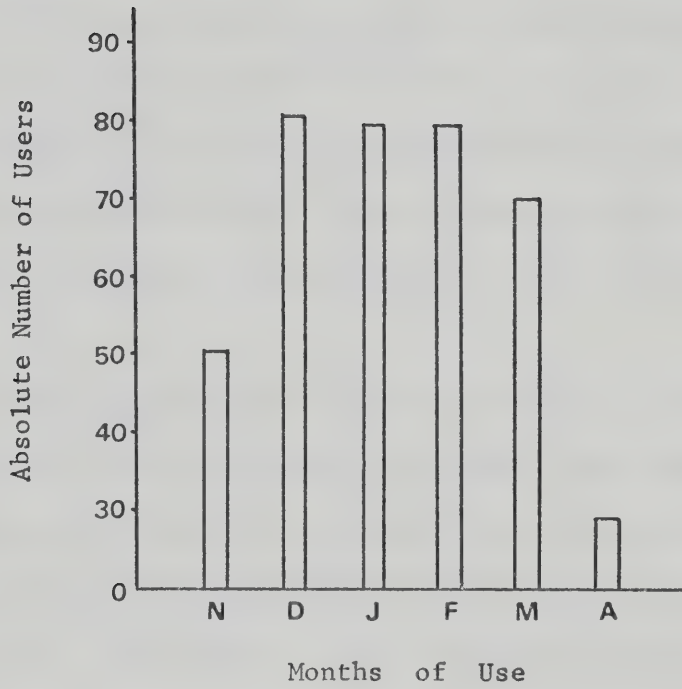
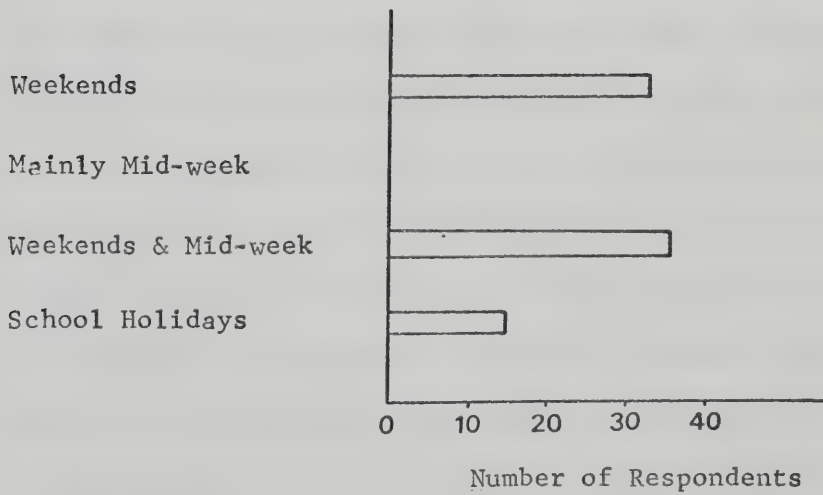


Fig. 3. Weekly Use Pattern





weekends only is almost as great as those who make use of their vehicles both during the mid-week period and on weekends. Weekend and school holiday use, however, account for only 57.2 per cent of the total. The remaining 42.8 per cent did not restrict themselves to weekend and holiday use only, but participated in power tobogganing during the mid-week as well. None of the respondents indicated that the use of the vehicle was restricted to the mid-week period only.

On the assumption that frequency of vehicle use measures the popularity of power tobogganing, respondents were asked how many days during the course of the winter they participated in their particular activity. The maximum number of days recorded was 100; the minimum was 3. The average number of days that respondents engaged in the activity was 30. During the period November 1968 to April 1969 (inclusive) there were 27 weekends. After comparing this with the average number of days of participation, it would seem that, on the average, respondents engage in their recreational activity about once every weekend. Table II summarizes the number of days respondents participated in power tobogganing.

It was an oversight not to include a specific question concerning the number of day trips and the number of overnight trips. However, a question concerning the type of overnight accommodation used (if any) was included in the questionnaire and should indicate the number of respondents who undertook day trips exclusively. A non-response to the question is assumed to indicate that the re-





TABLE II - FREQUENCY OF PARTICIPATION

Days	Number of Respondents	Per Centage
0-10	8	10.0
11-20	20	25.0
21-30	24	30.0
31-40	15	18.7
41-50	7	8.8
51-	6	7.5
Sample Size	80	100.0

spondent travels on day trips only. Forty of the 85 respondents indicated that they used some type of overnight accommodation. On the basis of the latter assumption it may be concluded that 47.0 per cent of the respondents participated in overnight trips at some time during the course of the winter. The remaining 53.9 per cent are asumed to participate in day trips only.

The most popular type of accommodation mentioned was the private cabin or cottage. The motel or hotel ranked second, with the truck camper or trailer third, and tent and outdoor camping fourth. Thus, respondents are divided almost equally into those



who make only day trips and those who make overnight trips or trips of more than one day.

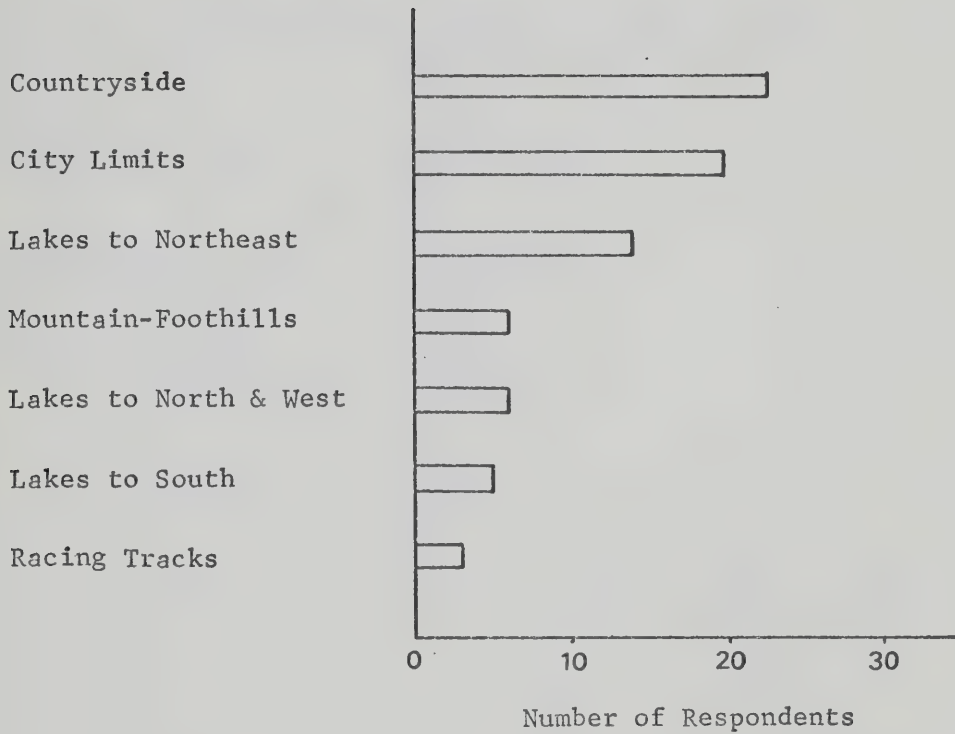
#### SITE SELECTION FOR USE

Respondents were asked to specify the area in which they made the most use of their power toboggan so that the location of the recreation site, with respect to Edmonton, could be determined. They were given three alternatives; (i) the city, (ii) the mountain-foothills region, and (iii) the lakes region to the north-east of Edmonton. These three alternatives proved to be inadequate and it was necessary to include the following when describing the areas of use: the surrounding countryside, primarily farmland within a radius of 25 miles; the lakes region to the north and west; the lakes region to the south; and the racing tracks. The distribution of the recreation sites of the respondents is indicated in Figure 4.

As Figure 4 indicates, most of the recreational use is in the surrounding countryside and the city itself. Slightly more than 50 per cent of the respondents indicated that either the city or the immediately surrounding countryside was the area of most frequent preference. The lakes region to the northeast, where there is fairly extensive cottage ownership, is third in importance. The mountain-foothills region, the lakes to the north and west, and the lakes to the south of the city have 8.2, 8.2, and 6.8 per cent, respectively, of the use as indicated by the respondents.



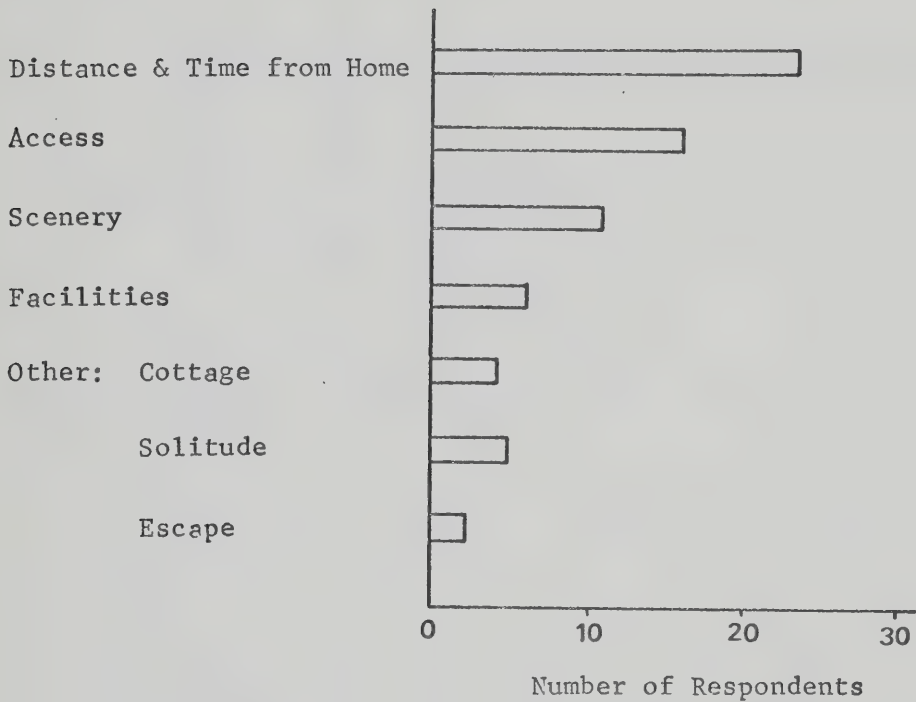
Fig. 4. Location Of Use



The most important factor determining the location of the recreation site is distance and time from home (Figure 5). Of those who answered this question as requested, approximately 35 per cent identified distance and time from home as most important in influencing the choice of that area which they used most often. The factor of second greatest importance is ease of access to the recreational site. Ease of access is dependent upon type and condition of the roads to the preferred site. Thus, we have almost



Fig. 5. Factors Influencing Site Selection



60 per cent of those who responded indicating that either distance and time from home or ease of access as being the factors which determine the location of their recreation site. The attractiveness of scenery is closely followed by site facilities. It bears noting that five of the six respondents who indicated the attractiveness of facilities provided at the site also used or had use of cottages. In addition, four respondents specified the use of their cottage as the most important determining factor. If we combine these two factors, facilities and cottages, assuming that



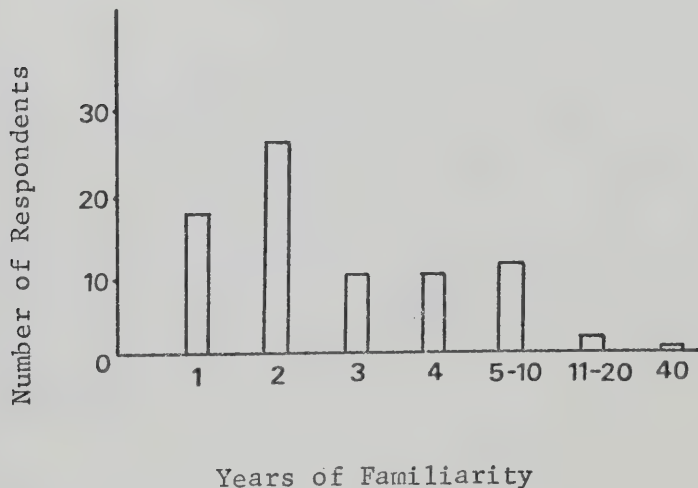


cottages are the facilities to which the respondents refer, then cottages become as significant as scenery in determining site selection.

Another aspect of attractiveness of an area is the familiarity of the respondents with that area. Respondents were questioned as to the number of years they had been going to their recreational area. The responses (Figure 6) indicate that 56.9 per cent of the respondents had only become familiar with the chosen area within the last two years. Eighty-two per cent of the respondents had been familiar with their recreational area for less than five years.

When this information is compared to the years of ownership of the power toboggan (Figure 1), it appears that the period of familiarity with the recreational area is closely related to the period of ownership of the recreational vehicle. This means that the power toboggan has permitted the recreationists to frequent areas which they might otherwise not frequent, especially during the

Fig. 6. Familiarity with Recreational Area





winter season. The average number of years of familiarity with the preferred area of use was 3.7 years.

Figure 5 indicates that the distance and time from home of the recreational site was the most important factor in determining specific location. The mean distance travelled by car for a typical power tobogganing trip was 47 miles (Table III).

It should be noted that the question did not specify whether the distances were for a day trip or a weekend trip, or whether those distances recorded indicate one-way or return trips. The information concerning distances participants would be willing to travel also lacks specification of one-way or return distances. Therefore, although the information is presented it cannot be considered as conclusive. The information will, however, provide at least an indication of the distances participants are willing to travel. The problem is to discern whether respondents were more likely to provide distances measuring one-way or return journeys. Those respondents who used their cottages for power tobogganing were selected for further study. The location of the cottage was given; its distance from Edmonton was estimated. This distance was then compared to the distances indicated in reply to this question. In this test 18 of the 23 cases showed that cottage owners (78.3 per cent) were indicating one-way distances. Thus, the assumption of one-way distances, based on the cottage owner's data was used in calculating Table III.



TABLE III - DISTANCES TRAVELLED BY CAR FOR POWER TOBOGGANING

Travelled		Willing to Travel	
Typical Trip		Day Trip	Weekend Trip
Miles*	No. <sup>+</sup>	No.	No.
0-10	17	4	2
11-20	13	7	2
21-30	9	12	2
31-40	7	7	
41-50	8	24	2
51-75	11	9	3
76-100	11	10	17
101-150	4	2	6
151-200	1	1	19
201-250			8
251-300			1
301-400		1	1
401-500			1
Sample Size	81	77	69
Mean Miles	46.9	56.3	171.0
Median	35	50	200

\*One-way distances are assumed

<sup>+</sup>Number of respondents.





The results indicate that the average distance respondents were willing to travel for a day trip was 56.3 miles (Table III). The seemingly unrealistically high mileage for the assumed one-way trip (e.g., 350 miles) is not travelled by many. Such distances may be travelled by avid racers for a day of racing. For a weekend trip the average maximum one-way distances respondents are willing to travel is 171 miles.

After comparing travel distances with the preferred area of use for the recreational activity, one notes that those who use areas in the city travel the shortest distances, those who frequent racing tracks travel the greatest distances (Table IV). The distance the participant is willing to travel is, as expected, generally

TABLE IV - DISTANCES TRAVELLED AND WILLING TO TRAVEL BY AREA

Area	Miles Travelled Mean	Miles Willing Mean
Countryside	40.8	67.4
City	13.6	33.5
Lakes to Northeast	46.5	38.5
Mountain-foothills	83.3	49.2
Lakes to North & West	48.3	46.7
Lakes to South	55.6	56.6
Racing Tracks	133.3	166.7
Sample Size	77	



greater than the distance actually travelled. However, there is one inconsistency in Table IV which remains unexplained, that for the mountain-foothills category. The average distance travelled to this area of use is 83.3 miles. Such a distance, even one-way, does not bring the recreationist near the mountain-foothills region. It is possible that these particular respondents use the mountain-foothills region occasionally, but not regularly, as the distance data would indicate. Also they are willing to travel less far than they actually do, and this attitude may bias their replies.

The questionnaire also included a series of questions concerning those who owned cottages. Power tobogganing and subsequent use of what were formerly summer cabins could in time create a demand for certain municipal services which, during the winter, would formerly have been foregone. This section of the study attempted to establish, in actuality, whether or not use was made of cabins or cottages for power tobogganing and whether the cabins were winterized in preparation for winter use. The study revealed that 24 of the 85 respondents owned cabins in the province. Of these 24, nineteen (78.8 per cent) used winterized ones. Eighteen were used in the winter for power tobogganing. One which was not winterized was used for power tobogganing, and one which was winterized was not used for the winter sport in question. Seven indicated that all of the power tobogganing had taken place at the cottage. Five indicated that one-half or more of the time spent power tobogganing had taken place at the cottage.



## ACTIVITY PREFERENCE

It is possible that the power toboggan may be used by various groups of people in various ways. To determine the nature of this use (activity preference) the respondents were asked to identify the type of terrain which they preferred and the specific activity in which they engaged (hunting, ice fishing, joy-riding). They were also asked to describe the nature of their group in terms of age and size, and to indicate their relationship to the rest of the group.

Thirty-seven per cent of the respondents indicated that they preferred power tobogganing on rough wooded terrain (Table V). Approximately 25.7 per cent prefer to power toboggan in open fields

TABLE V - TERRAIN PREFERENCES

Terrain Type	Number
Rough wooded	26
Open fields	18
Frozen lakes	14
Other: rough open	4
race tracks	2
old trails	2
mountains	2
cross-country	1
all areas	1
Sample Size	



and 20.0 per cent prefer frozen lakes. Power tobogganing on lake surfaces in Alberta is permitted for most of the winter, usually from the beginning of November to the beginning of May.<sup>2</sup> At least four to six inches of solid ice is recommended for a 300 pound machine, driver and passenger.<sup>3</sup>

The most popular single activity is joy-riding (random riding, following no particular route): 68.8 per cent of the respondents indicate that it is their most common activity (Table VI). Of the remainder, 16.4 per cent go trail riding, 8.2 per cent go

TABLE VI - POWER TOBOGGANING ACTIVITIES

Activity	Number
Joy-riding	42
Trail riding	10
Hunting	5
Ice fishing	2
Racing	2
Sample Size	61*

\*Sample size is small. Many did not indicate the rank of the activity. Thus, there was no way of ranking their most important activity.

---

<sup>2</sup>Pers. comm., D.E. Bowman, Supervisor, Ground Water Division, Dept. of Water Resources, Government of Alberta, Edmonton.

<sup>3</sup>The Alberta Government, Recreation Committee, A Guide to Snowmobiling in Alberta, pamphlet, Edmonton, 1970, p. 8.





hunting with their power toboggan, and 3.3 per cent each go racing and ice fishing. Other activities, such as skiing, overnight camping, and jumping were participated in occasionally. Significant activities, arranged in order of importance are as follows; (i) joy-riding, (ii) trail riding, (iii) hunting, (iv) ice fishing, and (v) racing.

Power tobogganing has proven to be a group sport; 83.5 per cent of the respondents indicated that they went power tobogganing with either family or friends (Table VII). This corresponds to Thorsell's results identifying power tobogganing as a group sport.<sup>4</sup> Of the respondents, 38.8 per cent went power tobogganing with their

TABLE VII - TYPE OF GROUP

Type	Number
One person alone	13
With family	33
With friends	21
With family and friends	17
Organized group	1
Sample Size	85

---

<sup>4</sup>Thorsell, op. cit., p. 4.



family, 24.7 per cent enjoyed the sport alone. One respondent only was a member of an organized group outing.

The average number of persons in each party has been calculated to be 6.7 persons (Table VIII). This compares with 9.5 persons per group in Thorsell's study.<sup>5</sup> Unfortunately the present questionnaire did not provide for further specification of groups by sex. Thorsell's study revealed that power tobogganing in the

TABLE VIII - SIZE OF PARTY BY AGE GROUPS

Age Groups	Mean Size of Party
18 yrs & over	1.9 persons
13 to 17 yrs	1.5
12 yrs & under	3.3
Total	6.7 persons
Sample Size	85

Mountain National Parks was primarily a male adult sport. In the present study, the group with the largest average size was the 12 years and under category. This merely substantiates data found in Table VII, that power tobogganing for respondents is a pastime which can easily include children.

---

<sup>5</sup>Ibid.



## SNOW AND TEMPERATURE PREFERENCES

Very often impatient power tobogganers are indifferent to snow depth, particularly at the beginning of the season. It is common to see machines roaring along on scant snow coverage, often with many bare patches. When questioned on their preferences the respondents indicated that they preferred snow from one to two feet in depth (Table IX). Most of the respondents (79.8 per cent) indicated that they preferred this depth, since it may easily be packed into a firm layer. Greater depths increase the risk of sinking into the snow.

TABLE IX - PREFERRED DEPTH OF SNOW

Depth (ft.)	Number
0.0 - 0.5	4
0.6 - 1.0	23
1.1 - 1.5	20
1.6 - 2.0	24
2.1 - 2.5	3
2.6 - 3.0	6
3.1 - 4.0	4
Sample Size	84



Sixty-one per cent of the respondents indicated that they preferred to use the power toboggan on fresh snow over a firm base (Table X). Hard packed snow ranked second in popularity; 19.5 per cent prefer this type of snow.

TABLE X - PREFERRED SNOW TYPE

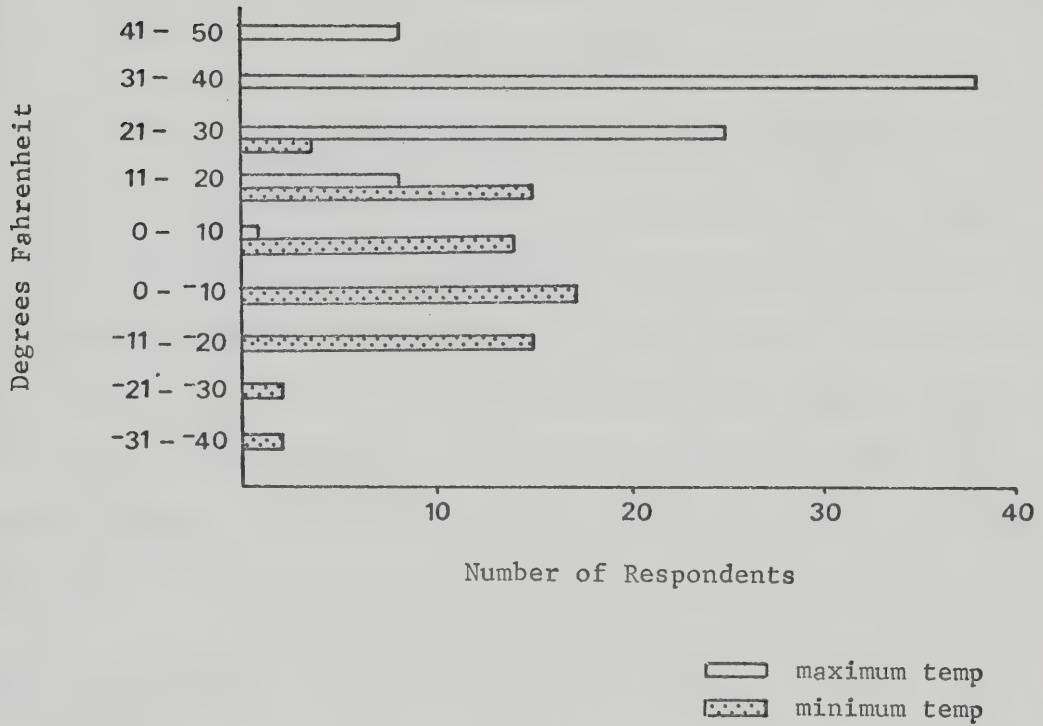
Type	Number
Fresh snow over firm base	47
Hard pack	15
Snow drifts	9
Soft loose snow	6
Sample Size	77

The average maximum temperature in which the respondents would go power tobogganing was 35.5 Fahrenheit. Maximum temperatures ranged from 10 F to 50 F. Thirty-one per cent of the respondents would cease their recreational activity if the temperature was above 21 to 30 F; 47.5 per cent indicated that their maximum temperature for power tobogganing was from 31 to 40 F (Figure 7). The average minimum temperature for power tobogganing was -1.2 F. Minimum temperatures ranged from 30 F to -40 F. Thus there is a





Fig. 7. Maximum and Minimum Temperatures



wider range of minimum temperatures than maximum ones, the latter being of course limited by the temperature at which snow melts.



## CHAPTER II

### SOCIAL CHARACTERISTICS OF THE SAMPLE POPULATION

This chapter will describe the social composition of the sample and attempt an analysis of their respective attitudes towards policies for power tobogganing in general. It bears mention that those characteristics described in this chapter are the characteristics of the power toboggan owner rather than those of the "typical" power tobogganer. In some instances, for example, the power toboggan is for the amusement of the children and not of the parents.

#### SAMPLE COMPOSITION

Male ownership of power toboggans is predominant. Eighty of the 85 respondents were men; five were women. This is as might be expected. The male, as head of the household and major wage earner would then assume the legal responsibility for the purchase and licencing of the machine. The decision to buy may not necessarily be his alone, but the responsibility for purchase and licencing seems to be. The age of the owners varies from 20 to 62 years. The average age of the owners is 39.1 years (Table XI). One-half of the vehicle owners were 40 years and over; the other half were under 40 years. We may compare this with the information in Table X



TABLE XI - AGE OF TOBOGGAN OWNERS

Years	Cottagers	Non-cottagers	Total
20 - 24		5	5
25 - 29		8	8
30 - 34		11	11
35 - 39	3	13	16
40 - 44	11	8	19
45 - 49	6	10	16
50 - 59	3	3	6
Over 50	1	2	3
Total	24	60	84
Average Age	44.1 yr	37.1 yr	39.1 yr

where half of the recreationists who power-toboggan are under 12 years of age. The mean age of cottage owners is significantly greater than the mean age of non-cottage owners; 44.1 years compared with 37.1 years. Presumably, the difference in average age may be explained by the amount of time necessary for a couple to become sufficiently well off to be able to afford a cottage.



The owner's average family size is 4.25 persons. Family sizes vary from one (assumed to be a single person) to eight (Table XII). This question should actually have been divided to ask for marital status and number of children, thereby eliminating ambiguity. However, from a review of the responses, it seems reasonable to assume that most of the respondents assumed family size to indicate the number of children and adults. This assumption is based upon a comparison of the age characteristics of the 15 respondents who indicate

TABLE XII - FAMILY SIZE

Size of Family	Number
1	9
2	6
3	8
4	19
5	17
6	13
7	4
8	3
Sample Size	79
Average Size of Family	4.25





a family size of one or two persons and the remaining 64 respondents. The average age of the 15 who indicate a family size of one or two persons is 31.6 years. This may be compared with the average age of the remaining 64 respondents, 40.7 years. Relatively then, the 15 respondents in question are young, probably either single persons or young married couples without children. Further investigation revealed that only five of the 15 were over 30 years; they had an average age of 50.4 years. The average age of the remaining ten now drops to 24.7 years, thus supporting the assumption that they are either single persons or young married couples without children. Of the five over 30 years, two indicated that they were single, one was known to be widowed with a son, and two were married but with no children. Thus, the assumption that most of the respondents indicate family size to be the number of adults and children seems to be a valid one.

Almost half (48.2 per cent) of the power toboggan owners spent their childhood on a farm. Twenty-eight per cent were raised in the city, and 21.2 per cent were raised in a small town (Table XIII). The significance of this proportion of owners with a rural background in determining recreational patterns cannot be dealt with in this study. It would be of considerable interest to compare the proportion of power toboggan owners with the proportion of Edmontonians with a rural background to determine whether or not



TABLE XIII - CHILDHOOD UPBRINGING

Place	Number
City	24
Small town	18
Farm	41
Overseas (city)	2
Sample Size	85

there is any relationship between childhood background and present recreational activities. Such an inquiry, however, would in itself be a topic for further research.

Almost half (48.8 per cent) of the respondents achieved a high school education (Table XIV). The same proportion of respondents had an elementary education as had a college or university education, 17.9 per cent. The remainder (15.5 per cent) had technical or vocational training.

The most common occupational categories revealed in this survey are the managerial, the craftsmen and production processing, and the technical and professional categories. Managerial positions are indicated for 30.1 per cent of the respondents; 28.9 per cent are craftsmen or are involved in some form of production processing; and 14.4 per cent have professional or technical positions (Table XV).



TABLE XIV - EDUCATION

Level	Number
Elementary	15
High School	41
Technical or Vocational	13
College or University	15
Sample Size	84

Approximately half of the respondents have yearly family incomes of over \$10,000 (Table XVI). Twenty-five per cent have an income which is greater than \$15,000; 8.7 per cent have an income between \$12,501 and \$15,000; and 12.5 per cent have an income between \$10,001 and \$12,500. This distribution corresponds closely with that which would be expected from the distribution of occupational categories, where about 44.6 per cent of the owners fall into the management and professional occupational categories. Only 5.0 per cent of the respondents have a yearly family income of \$5,500 or less. This sharp break would indicate that the critical minimum family income for power toboggan ownership is near \$5,500.

The expenditures for a typical day of power tobogganing are as variable as the people using the vehicles. The minimum



TABLE XV - OCCUPATIONS

Category*	Number
Managerial	25
Professional & Technical	12
Clerical	2
Sales	5
Service & Recreation	1
Transportation & Communication	8
Farmers & Farm Workers	1
Miners, Quarrymen & Related Workers	1
Craftsmen, Production Processing Workers	24
Laborers	2
Housewife	1
Retired	1
Sample Size	83

\*Categories are as defined by DBS, Operational Classification Manual, Census of Canada, 1961, Ottawa, April 1961.





TABLE XVI - FAMILY INCOME

Income	Number
Under \$2500	1
\$ 2501 - 4000	
\$ 4001 - 5500	3
\$ 5501 - 7000	13
\$ 7001 - 8500	11
\$ 8501 - 10000	15
\$10001 - 12500	10
\$12501 - 15000	7
Over \$15500	20
Sample Size	80

recorded, 75 cents, is that of a young boy who tobogganed in the river valley near his home. The maximum expenditure, 80 dollars, is quoted by a physician who took his family to the mountains. The average expenditure is 13 dollars a day. This usually includes the cost of food and gasoline for both the car and the power toboggan. Both the median and the mode are \$10 which suggests a tendency for people to give a rounded number when indicating expenditures. As such then the figures quoted by the respondents may be inaccurate.



By simple arithmetic calculations, we have a mean of \$13 a day expenditures and a mean of 30 days of use, which results in an average seasonal expenditure of \$390 per respondent. This does not include the original expense of acquiring the vehicle, a trailer to transport it, and appropriate clothing.

#### ATTITUDES

Respondents are of the opinion that power-toboggan use should be permitted in all parks, national, provincial, and municipal (Table XVII). They wish to use their vehicles in the parks and they feel that all parks policies should permit them to do so.

TABLE XVII - PARK USE; PREFERENCES AND POLICY

Parks	Preferences		Policy Should Permit Use	
	Use	No Use	Yes	No
National	73	3	72	8
Provincial	73	8	76	5
Municipal	72	7	73	6



The respondents are equally divided into those who desire unrestricted use of parks and those who prefer some type of restriction or control. Some forty-two per cent of the respondents indicate a preference to roam the parks freely, without any restrictions (Table XVIII). Of the 53.8 per cent who would accept controlled use of parks, 30.7 per cent prefer designated areas of use and 23.1 per cent prefer marked trails.

TABLE XVIII - PREFERRED TYPE OF USE IN PARKS

Type	Number
Designated Areas	24
Marked Trails	18
Roam Freely	36
Sample Size	78

A simple comparative analysis of those who desired restrictions and those who did not with certain sociological and economic factors revealed age as most important in determining restricted or non-restricted use preferences (Table XIX). There appears to be a tendency for those under 35 years of age to favor non-restricted use of the parks. Of those within the 20 to 24 years age category, 80.0 per cent desire unrestricted use; 62.5 per cent of the 25 to



29 years age group prefer unrestricted use, as do 64.6 per cent of the 30 to 34 years age group. This may be compared with 23.1 per cent and 46.6 per cent for the 35 to 39 years and the 40 to 44 years age groups, respectively.

Occupation and income also tend to influence somewhat the acceptance of restrictions. Of particular interest is the tendency for craftsmen and production processors to favor non-restrictions; 68.2 per cent want no restrictions. There is also a very slight tendency for those in professional or technical positions to favor non-restricted use. In contrast to this, 69.6 per cent of those in managerial positions favor controlled use.

The two income categories which favor non-restricted use are the lower income categories under \$5,500 and the \$10,001 to \$12,500 category. However, the comparative analysis of the lower income categories is not applicable in this instance because of the very small representation in these lower categories. Therefore, there will be no discussion of the preferences of these income groups. What remains then is that 66.6 per cent of the \$10,001 to \$12,500 income category prefer non-restricted use. Those with incomes ranging between \$5,501 and \$10,000 reveal a preference for controlled use of parks, particularly so the \$5,501 to \$7,000 group, of whom 69.2 per cent prefer controlled use.





TABLE XIX - PARK USE PREFERENCES - RESTRICTED AND NOT RESTRICTED

I Childhood Background	Non-res. Use*	Restricted
Farm	48.7%	51.3%
Small Town	57.1	42.9
City	36.0	64.0
II Occupation	Non-res. Use	Restricted
Managerial	30.4%	69.6%
Professional & Technical	55.5	44.5
Clerical		
Sales	40.0	60.0
Service & Recreation		
Transport & Communications	42.9	57.1
Miners, Quarrymen & Workers		
Craftsmen & Production	68.2	31.8
Laborers		
Housewife		
Retired		
III Education	Non-res. Use	Restricted
Elementary	50.0%	50.0%
High School	43.2	56.8
Technical or Vocational	57.1	42.9
University or college	41.6	58.4



IV Age	Non-res. Use	Restricted
20 - 24 years	80.0%	20.0%
25 - 29	62.5	37.5
30 - 34	64.6	35.4
35 - 39	23.1	76.9
40 - 44	46.6	53.4
45 - 49	28.6	71.4
50 - 59	40.0	60.0
Over 60	33.3	66.7

V Income	Non-res. Use	Restricted
Under \$2500		
\$2501 - 4000		
\$4001 - 5500	66.6%	33.4%
\$5501 - 7000	30.8	69.2
\$7001 - 8500	44.4	55.6
\$8501 - 10000	46.6	53.4
\$10001 - 12500	66.6	33.4
\$12501 - 15000	50.0	50.0
Over \$15000	42.1	57.9

\*Expressed as a per centage of the total within each category who also indicated use preference. For example, 48.7% of those with a farm background preferred non-restricted use.



The educational and occupational characteristics of the \$10,001 to \$12,500 income group were then singled out for inquiry because they favor unrestricted use. Table XX was constructed from the responses to compare these and other characteristics. Unfortunately, all respondents did not reply to all questions. If we were to restrict the data in the table only to those who provided information on occupation, education, income, and childhood background, the data would be reduced to the point of insignificance. In order to retain as much information as possible Table XX includes all information concerning these four characteristics. Thus, totals in the corresponding rows and columns are not the same.

It was found that 40 per cent of the respondents within the \$10,001 to \$12,500 income category held managerial position, and 40 per cent were craftsmen and production processors (Table XX). However, since those in managerial positions have already indicated a moderate tendency towards controlled use, the preference for non-restricted use by this income category must lie with the craftsmen and production workers.

With respect to education, 50 per cent of those in the \$10,001 to \$12,500 category have a technical or vocational training (Table XX). Of all those with such a training, 84.5 per cent were classified as craftsmen or production processors. Thus, we have two factors which appear to influence the preference of non-restricted use of parks; age, and occupation and income, which in this case are interdependent.



TABLE XX - CROSS RELATIONSHIPS

OCCUPATION	1	2	3	4	5	6	7	8	9	10	11
	3	1	2	4	4	9					
	1			2	1	3	6				
	1			1							
		2	1	1	1						
		1									
	1	3	1			1					
									1		
		1	4	6	7	4			1		
				1					1		
				1							
OCCUPATION	1	2	3	4	5	6	7	8	9	10	11
	4	13	1	5							
		5		9							
	1		1								
	1	3		1							
	1										
	3	5									
	1										
	4	9	11								
	1	1									
ELEM H S TECH UNIV	<\$2500	2501-4000	4001-5500	5501-7000	7001-8500	8501-10000	10001-12500	12501-15000	>\$15000		
	1	2	4	3		2	1	1		10	20
		1	9	5	10	1	3	7		2	8
				2	4	5		2		3	12
ELEM H S TECH UNIV	ELEMENTARY	HIGH SCHOOL	TECH	VOC	UNIVERSITY						
	10	20	8	3						FARM	
	2	8	4	4						TOWN	
	3	12	2	8						CITY	

(Note: The numbers in the boxes indicate the number of respondents.  
To avoid confusion they have not been totalled.





The success of a power toboggan trip, according to the respondents, depends upon three major factors; good weather and snow conditions, the presence of family and friends, and smoothly functioning machinery. Other factors mentioned which make for an enjoyable experience are skill and sportsmanship, proper clothing, and absence of restrictions. Only one respondent stated that the power toboggan contributed the most to a successful trip by keeping the children occupied while the adults enjoyed themselves before the fire.

Most of the comments made by the respondents were concerned with regulations. Respondents were of the opinion that regulations were either too severe or they were inadequate. Some respondents are safety conscious and indicate the desire for safety education as well as regulations making mandatory such safety equipment as helmets. Such a cautious attitude is contrasted sharply by the attitude of an anonymous respondent who stated that "...restrictions are a waste of time. These machines are designed for those who like to 'get away from it all'."

To recapitulate then, the object of this study was to concentrate upon the movement of recreationists from an urban base. The nature of this movement has been examined in terms of direction, distance, season, and frequency. As indicated in Chapter I, time and distance from the urban base are important factors in the selection of the recreational site. The area of greatest use, as established by this study, lies within 40 miles of the city (Table IV and Fig. 4). Except for those who remain within the limits of the city, the lines



of recreational movement radiate in all directions. On average the power tobogganers are willing to travel up to 57 miles for a day trip and up to 171 miles for a weekend trip. Those who own cottages travel greater distances for their power tobogganing than those who did not. Also, because the cottage owner is older than the non-cottage owner, and because age is a factor in the individuals' tolerance of restrictions, we can expect those who travel to the countryside to favor a policy of non-restrictive use. The seasonal movement of power tobogganers from the city reaches its peak in the months of December, January, February, and March. The weekly traffic reaches its peak during the weekend.

Thus, through the use of the urban based perspective the nature and characteristics of the movement of recreationists can be determined. Because, as stated in the Introduction, parks planning and management needs might best indicate research needs and priorities in outdoor recreation, it is now of interest to examine their reaction to the movement of power tobogganers. The following chapter will present the policies governing power toboggan use on public lands.



### CHAPTER III

#### PUBLIC POLICIES AND REGULATIONS

This chapter presents the policies towards and controls of power toboggan use on public lands by government agencies in Alberta. The power toboggan was first licenced in 1967 because of the great increase in number. It was not until January 15, 1968 that an identification registration requiring the make, year, and serial number of all power toboggans which would use public lands was initiated.<sup>1</sup> Until July 1, 1969 when the Snow Vehicles Act was enforced, the power toboggan was subject to the regulations of the Prohibited Vehicles Section (20) of the Highway Traffic Act of Alberta. This act prohibited travel on public highways except under specified conditions.

The policies for National Parks, Albertan Provincial Parks, and Edmonton Municipal Parks are described as they were during the winter season of 1968-69.

---

<sup>1</sup>Pers. comm., Wm. Hogg, Supervisor, Vehicles Division, Alberta Department of Highways, Edmonton.



## NATIONAL PARKS

Power toboggan operation in National Parks during the 1968-69 winter season was regulated by a new Operational Policy Directive.<sup>2</sup> The purpose of the directive was to encourage the safe use of power toboggans and to ensure the protection of wildlife and the natural environment. The directive was also designed to safeguard the rights and pleasures of non-tobogganing recreationists.

For the 1968-69 winter season a free permit, obtained upon entering, was required to operate a power toboggan in the parks. Vehicles were to be equipped with a stock muffler in good condition. On entering the park, operators were informed which trails were to be used and how they had been marked. Trails were supervised and when conditions required it, closed temporarily. Use was made of existing roads, and horse and hiking trails wherever possible. Temporary winter parking lots were provided wherever possible to accommodate cars, trucks, and trailers.

The directive advised park superintendents to develop a number of short trails and small areas for day and general use at short distances from the parking areas. These were rated as Class I and did not necessitate special registration or the provision of survival equipment. Longer cross-country trails and remote areas were designated as Class II. Travel in these areas required special

---

<sup>2</sup>Pers. comm., R.K. Plowman, Acting Regional Director, Western Regional Office, National Parks Branch, Calgary. The directive was issued in Ottawa, Dec. 3, 1968.





registration permits and survival equipment. Furthermore it was required that a minimum of two vehicles should travel together. The directive warned that oversnow vehicle trails were not to encroach upon developed ski areas, or to coincide with trails used for cross-country skiing or snowshoeing. Nor were the users to pass through the winter feeding grounds of wildlife.

The towing of skiers was permitted in certain areas, but rallies, races and endurance meets, or other organized competitive events were not allowed.

Nine National Parks in the western region were open to power toboggan operation. In Alberta four parks were open for winter use; Banff, Jasper, Elk Island, and Waterton National Parks. Table XXI indicates the number of trails and their total length for each park. See Map 1 for the location of the above mentioned National Parks.

TABLE XXI - DESCRIPTION OF TRAILS AND AREAS

Park	Class I Trails		Class II Trails	
	No.	Length	No.	Length
Banff	4	115 mi.	5	18 mi.
Jasper	4	24	3	45
Elk Island	1	7	-	-
Waterton	-	-	4	52



---

Park	Class I Areas		Class II Areas	
	No.	Area	No.	Area

---

Banff	1	1 sq. mi.	-	-
Jasper	1	40 acres	-	-
Elk Island	-	-	-	-
Waterton	-	-	-	-

---

Source: Pers. comm., R.K. Plowman, Calgary.

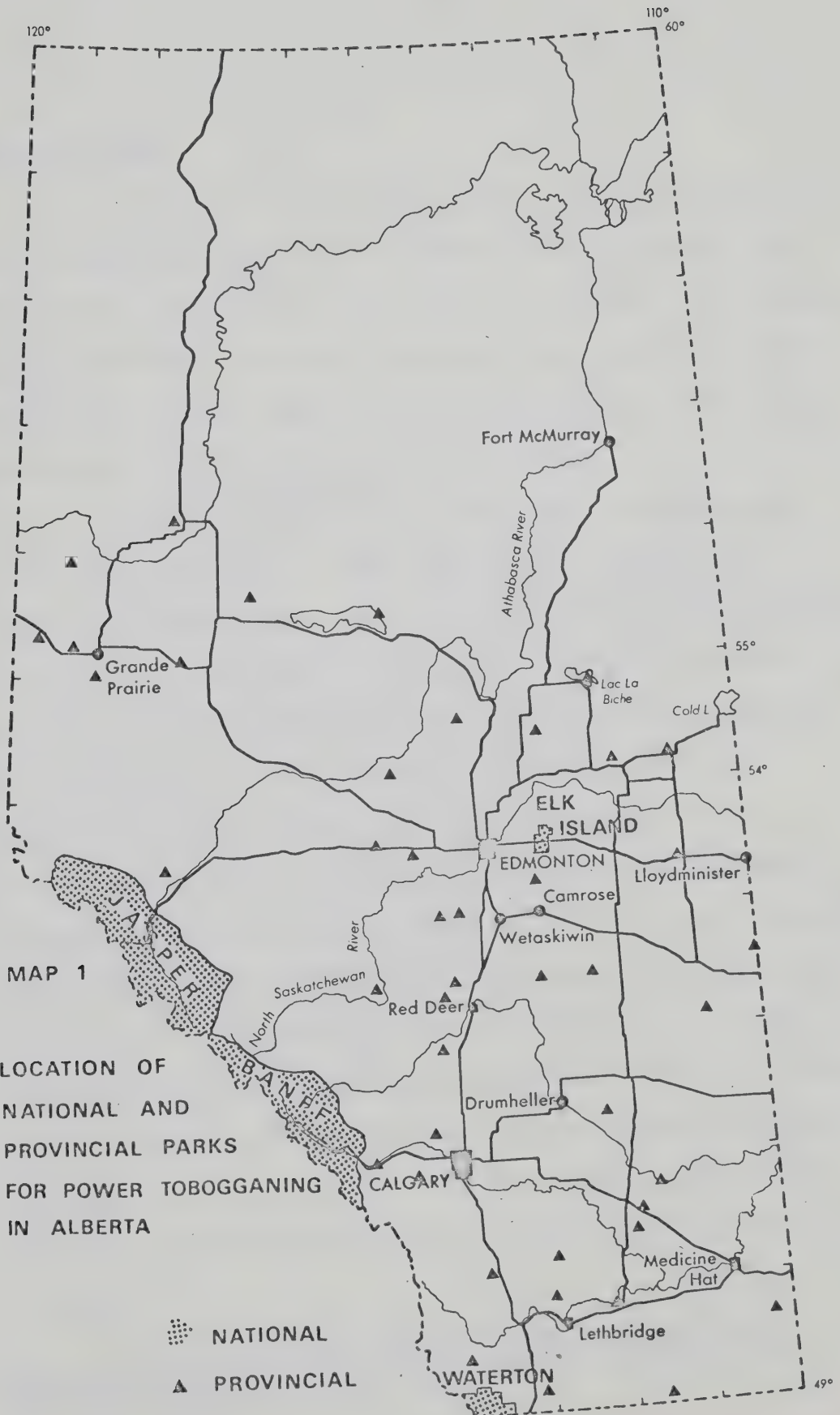
#### PROVINCIAL PARKS

The Alberta Provincial Parks Department had no official policy regarding the use of power toboggans in Provincial Parks.<sup>3</sup> There may have been restrictions in some parks, but these were at the discretion of the park supervisor. However, there were no parks in which they were prohibited. On the other hand, power toboggans were not permitted in landscaped areas where damage might be done to young trees and shrubs, or on roads where they might encounter cars. See Map 1 for the distribution of Provincial Parks within Alberta.

---

<sup>3</sup> Pers. comm., J.J. Nowicki, Alberta Provincial Parks Geographer, Edmonton.







## MUNICIPAL PARKS

The City of Edmonton first issued regulations controlling power-toboggan use within the city limits in January, 1967. Over the years the regulations as established in Bylaw 2977 have remained largely unaltered.<sup>4</sup> Originally nine parks were provided for power toboggan use; however, the next season the number was reduced and since then the number and the parks have varied.

During the 1968-69 winter season power tobogganing was permitted in seven areas: Rundel Heights Park, Riverside Golf Course, Fort Edmonton Park, Buena Vista Flats, Hoag Ravine and Park, Victoria Golf Course, and Terwillegar Park (see Map 2 for their location). Power toboggans were operated in these areas only when they were declared "open" for use by the Parks and Recreation Department, and in accordance with regulations established by municipal bylaw. Public liability and property damage insurance coverage was to be obtained, and proof of insurance was to be carried at all times on the toboggan. Every power toboggan operating after sundown was to be equipped with lights and reflectors. A speed limit of 30 miles per hour was imposed, which was reduced to 5 miles per hour when falling snow and other conditions limited visibility. No rallies or races were permitted in these areas without special permission. Operators were forbidden to drive onto areas where the

---

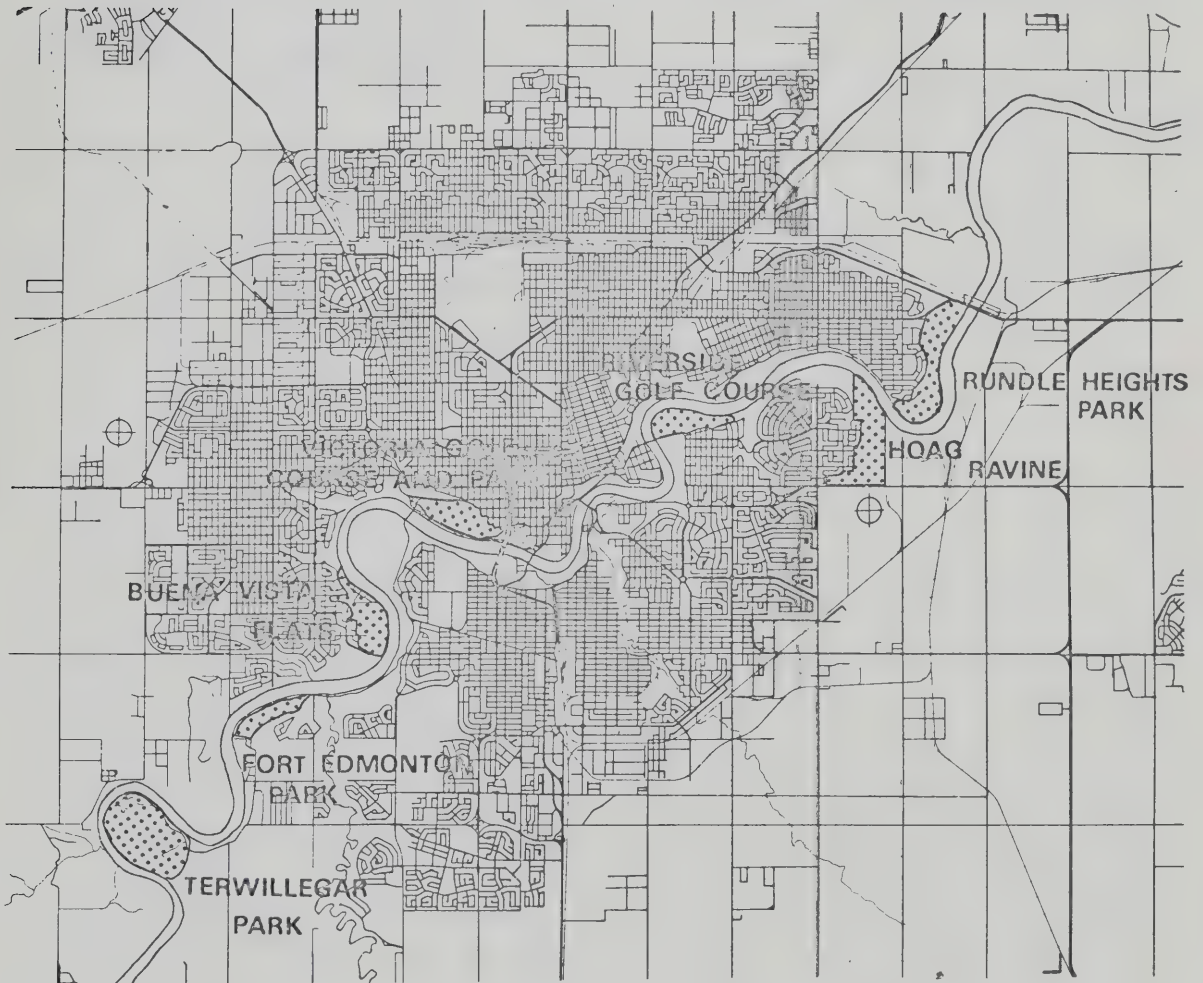
<sup>4</sup>City of Edmonton, Power Toboggans--Permitted Areas--  
Winter Season 1968-69, mimeographed copy, Dec. 12, 1968, 6 pp.  
Bylaw 2977 was passed March 13, 1967.





MAP 2

EDMONTON POWER TOBOGGANING PERMITTED AREAS  
1968 1969





City had planted trees and shrubs, and were to obey all directional and other signs erected by the City.

Thus, these were the regulations, instituted in the interest of public safety and protection of park areas, to which the power tobogganing public of Alberta and Edmonton were subject during the 1968-69 winter season.



## CHAPTER IV

### CONCLUSION

This has been an attempt by a geographer to establish recreational patterns from an urban base. One recreational activity was chosen and one urban base was selected. Although this thesis intended to gather basic information and to show certain general characteristics of the activity, distinct facts about Edmonton's power toboggan enthusiasts are revealed with the text. In retrospect, one can find many weaknesses in the survey. An increase in sample size would have significantly improved the quality and depth of the findings. In general the questionnaire utilized was effective in answering the questions which were posed within the framework of the study. However, in some instances ambiguous questions could have been more specific in their purpose. For example, on the subject of distance, much more meaningful information could have been obtained had the question asked specifically the maximum and minimum distances which had been travelled in addition to the average distance for the average trip. The question could also have specified whether the distance was one-way or return and also whether it was the distance for a day trip or an overnight trip. Question 24 on the composition of the activity group by age could well have been expanded to indicate the composition of the group by sex as well as by the



combination of adults and children. The number of day trips as opposed to the number of overnight trips might also have been included. On the subject of cottages, it would have been useful to know whether cottages were winterized prior to acquisition of the power toboggan or whether they were winterized because of the purchase and subsequent use of the vehicle.

In Chapter I on the patterns of use of the power toboggan, it was revealed that power tobogganing was an activity most popular during the months of December, January, and February. It was an activity which was primarily restricted to weekend and holiday use. Recreational use of the vehicle was made, on the average, once a week. Almost half of the respondents used their vehicles in the city or within 25 miles of it; distance and time from home being most important factors in determining the site for the activity. Most respondents were willing to travel 50 miles for a one-way trip. The survey indicated that those who have cottages tend, through the use of the toboggan, to increase their use of them during the winter.

Most respondents preferred fresh snow over a firm base one to two feet in depth. Temperature fluctuations did not appear to restrict the major portion of the respondents' tobogganing activities severely. Terrain preferences, in order of popularity were (i) rough wooded areas, (ii) open fields, and (iii) frozen lakes. Of the various activities possible, joy-riding was favored by the





most, trail riding was second. Power tobogganing has proven to be a group sport and especially a family sport. The average group size was approximately six persons, one half of whom were 12 years of age and under.

The study reveals that the average age of the vehicle owner was 39 years. The average age of cottage owners proved to be significantly greater than the average age of non-cottage owners. Ownership of the vehicle was not closely related with any occupation categories, although two, managerial, and craftsmen and production processing workers were the most common categories of ownership. It appears that the critical minimum family income for vehicle ownership was \$5,500. Furthermore, it was established that there is some relationship between the respondents' socio-economic characteristics and their acceptance of controlled use of the parks. There was a tendency for craftsmen and production processors and those under 35 years of age to prefer a non-restrictive policy on the use of power toboggans in parks. In contrast to this the managerial group and persons over 35 years of age tended to favor a controlled-use policy for parks.

The study presents the policies towards power toboggan use on public lands during the 1968-69 winter season. National Park use was determined by an Operational Policy Directive. Edmonton Municipal Parks also had a policy identifying certain parks as being open for use in accordance with regulations established by municipal bylaw. Use of Provincial Parks for power-tobogganing purposes was



at the discretion of the park supervisors. There were then, within National Parks, strictly defined use areas; within Provincial Parks, definite non-use areas; and within some Edmonton parks, definite non-use areas. If, in the latter case, the frame of reference is shifted from the individual park to the city as a whole, then there were strict use areas.

We are now confronted with the problem of drawing conclusions from some of the sample data with respect to all Edmontonians who used power toboggans (1968-69). As stated previously, in the Introduction, a random sample was taken of recreational-power-toboggan owners in Edmonton. By definition, a random sample is representative of the total population, and statistical inferences may then be made.<sup>1</sup>

Thus, the following conclusions, with respect to the recreational power-tobogganing population in Edmonton, are made. It was established in Chapter I that the average power tobogganer used his vehicle almost once every weekend. Therefore, with a 5 per cent chance of error, one may conclude that, of the 1550 power toboggan owners in Edmonton, from 266 to 570 would journey, on any given weekend, into the nearby countryside for the purposes of power tobogganing. Similarly, from 218 to 510 would use the vehicle within the city, and from 127 to 384 would travel to the lakes northeast of the city. From 18 to 201 owners can be expected

---

<sup>1</sup>Samuel B. Richmond, Statistical Analysis, Ronald Press Co., New York, 1964, pp. 216-226.



to travel to the mountain-foothills region and an identical number to the lakes to the north and west. Those who would travel to the lakes to the south of the city range in number from 7 to 176; and from none to 122 can be expected to frequent race tracks.

The data in Table XVII was subjected to the same type of analysis with the following conclusions. With a 5 per cent chance of error it may be estimated that of the power toboggan owners in Edmonton, 1400 to 1550 would like to make use of National Parks, between 1280 and 1490 would like to make use of Provincial Parks, and between 1300 and 1500 would like to use Municipal parks.

Similarly, with respect to the recreational power toboggan owners, it may be estimated that from 1280 to 1490 would be in favor of a policy which would permit power toboggan use in National Parks. From 1350 to 1530 owners would approve a similar use of Provincial parks and between 1320 and 1520 could be expected to favor use of Municipal parks.

In January, 1968, there were 7678 power toboggan registrations for Alberta. By April, 1971, the number had risen to 22,000;<sup>2</sup> an average increase of almost 4770 a year. If this trend should continue then nearly 27,000 registrations could be expected in 1972, and approximately 30,000 the following year, 1973. Such figures are impressive and should provoke the development of a policy which would balance public demand for individual enjoyment with the conservation of the natural environment.

---

<sup>2</sup> Pers. comm., Wm. Hogg, Supervisor, Vehicles Division, Alberta Department of Highways, Edmonton.



## BIBLIOGRAPHY

- Alberta Government, Recreation Committee, A Guide to Snowmobiling in Alberta, Queen's Printer, Edmonton, 1970, 12 pp.
- Alberta Motor Association, "Snowmobiling--Newest Sport," The Albertan Motorist, Jan.-Feb., Calgary, 1969 p. 5.
- Baldwin, Malcolm F. The Snowmobile and Environmental Quality, The Conservation Foundation, Washington, 1969.
- Campbell, Colin K. An Analysis of the Relationship Between the Urban Based Skier and His Recreational Hinterland, M.A. Thesis, unpublished, Department of Geography, University of British Columbia, Vancouver, 1967, 85 pp.
- Canada, Dominion Bureau of Statistics, Operational Classification Manual, Census of Canada, 1961, Queen's Printer and Controller of Stationery, Ottawa, April 1961, Catalogue No. 12-506, 467 pp.
- Canada Safety Council, Snowmobile Accidents in Canada (fatal accidents and fatalities), Winter of 1969-70, mimeographed copy of a preliminary report, Ottawa, October, 1970, 3 pp. and appendices.
- Edmonton, Recreation Department, Power Toboggans--Permitted Areas--Winter Season 1968-69, mimeographed copy, Edmonton, 1968, 6 pp.
- Gavin, H.C.R. (Regional Coordinator, Recreation Sector, Canada Land Inventory), The 1970 International Snowmobile Congress, Duluth, Minnesota, February 9 to 11, 1970, mimeographed copy, circa 1970, 9 pp.
- Hethrington, John W. The Snowmobile: What Makes It Go, What Makes It Grow, an address to the Society of Automotive Engineers, Detroit, 1967, pamphlet, 12 pp.
- National and Provincial Parks Association of Canada and the University of Calgary, The Canadian National Parks: Today and Tomorrow, Conference Proceedings, 2 Vol., University of Calgary, 1968, 1027 pp.
- \_\_\_\_\_, "Summation and Resolution," The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. II, University of Calgary, 1968, pp. 986-987.





- Oberlander, H. Peter, "Urbanization and Canada's National Parks," in The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. I, University of Calgary, 1968, pp. 292-305.
- O'Brien, Grant G. "Power Toboggans in National Parks," The Pathfinder, Vol. 4, June 1969, pp. 1-2.
- Outboard Marine Corporation of Canada, Ltd, Snow Cruisers Start Sports Boom, Press Release, mimeographed copy, Peterborough, Ontario, 1962, 2 pp.
- Pleva, E.G. "The Parks of Ontario," in The Canadian National Parks: Today and Tomorrow, Conference Proceedings, Vol. I, University of Calgary, 1968, pp. 439-452.
- Richmond, Samuel B. Statistical Analysis, Ronald Press Co., New York, 1964, 633 pp.
- Schneider, Karl, The Use of Snowmachines for Hunting and Trapping in Alaska, Alaskan Department of Fish and Game, mimeographed copy, Juneau, circa 1967, 5 pp.
- Shaffer, Elwood L. and John F. Hamilton, A Comparison of Four Survey Techniques Used in Outdoor Recreation Research, U.S. Forest Research Paper NE-86, Forest Service, U.S. Department of Agriculture, Upper Darby, Pa., 1967, 22 pp.
- Snook, Patrick K. "Snowmobile Buyer's Guide," Field and Stream, Nov. 1968, Vol. LXXIII, No. 7, pp. 90-91.
- Swenson, Lowell, "The Snowmobile Industry's Antidote for Growing Pains," a paper presented at the Field and Stream Seminar on Snowmobiling, Minneapolis, Minn., June 1969, mimeographed copy, 5 pp.
- Thorsell, J.W. Mountain National Parks: Some Aspects of Winter Use, Recreational Research Report No. 38, National Parks Service--Planning, Ottawa, May 1968, 27 pp.
- Wetmore, Stephen P., Carl H. Nellis and Lloyd B. Kieth, A Study of Winter Coyote Hunting With the Use of Snowmobiles, Wildlife Technical Bulletin No. 2, Government of Alberta, Department of Lands and Forests, Fish and Wildlife Division, Edmonton, circa 1969, 22 pp. and appendices.
- Wolfe, Roy I. Parameters of Recreational Travel in Ontario, Research Paper No. RB 111, Ontario Department of Highways, Downsview, 1966, 37 pp.



24. WHAT IS THE USUAL NUMBER OF PEOPLE IN YOUR PARTY FOR EACH AGE GROUP?

\_\_\_\_\_ number 18 years & over  
\_\_\_\_\_ number between 12 and 18  
\_\_\_\_\_ number 12 years & under

25. WHAT IS YOUR: (TO BE ANSWERED BY OWNER)

age \_\_\_\_\_  
occupation \_\_\_\_\_  
family size \_\_\_\_\_

26. WHAT LEVEL OF EDUCATION HAVE YOU ATTAINED?

- ☐ elementary (1 - 9 years)  
☐ high school (10 - 12 years)  
☐ college or university  
☐ technical or vocational

27. HAVE YOU BEEN BROUGHT UP IN A

- ☐ city  
☐ small town  
☐ farm  
☐ overseas

IF OVERSEAS, PLEASE SPECIFY WHETHER IN A

- ☐ city  
☐ small town  
☐ farm

28. WHICH INCOME CATEGORY BEST INDICATES YOUR GROSS ANNUAL FAMILY INCOME?

- ☐ \$2,500 and under  
☐ \$2,501 - \$4,000  
☐ \$4,001 - \$5,500  
☐ \$5,501 - \$7,000  
☐ \$7,001 - \$8,500  
☐ \$8,501 - \$10,000  
☐ \$10,001 - 12,500  
☐ \$12,501 - \$15,000  
☐ \$15,001 and over

29. COULD YOU ESTIMATE THE COST OF A TYPICAL DAY OF POWER TOBOGGANING FOR YOUR GROUP?

\$ \_\_\_\_\_

30. WOULD YOU LIKE TO USE YOUR POWER TOBOGGAN

in National Parks ☐ yes ☐ no  
in Provincial parks ☐ yes ☐ no  
in Municipal parks ☐ yes ☐ no

31. DO YOU THINK POWER TOBOGGANS SHOULD BE PERMITTED IN

National Parks ☐ yes ☐ no  
Provincial Parks ☐ yes ☐ no  
Municipal Parks ☐ yes ☐ no

32. WOULD YOU PREFER (PLEASE CHECK ONLY ONE ANSWER)

- ☐ to stay in designated areas  
☐ to stay on marked trails  
☐ to roam the park freely

33. ARE ANY OF YOUR FRIENDS OR RELATIVES THINKING OF BUYING A POWER TOBOGGAN?

☐ yes ☐ no

34. WHAT CONTRIBUTES THE MOST TO MAKING YOUR TRIP SUCCESSFUL?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PLEASE MAKE ANY ADDITIONAL COMMENTS IN THE SPACE BELOW.

THANK YOU VERY MUCH FOR COMPLETING THE QUESTIONNAIRE.

DEPARTMENT OF GEOGRAPHY



THE UNIVERSITY OF ALBERTA  
EDMONTON 7, CANADA

Dear Sir or Madam,

I am a graduate student in Geography at the University of Alberta and have decided to undertake a study of the recreational use of power toboggans for my Master's thesis.

By taking a few minutes of your time to fill in this questionnaire giving us information about your preferences, opinions and habits, you will provide us with valuable insights for future recreational planning.

All information provided by the questionnaire will be treated confidentially.

Thank you for your cooperation,

*Iris M. Samoil*

Iris M. Samoil  
(Geography Dept., U. of A.)

- 1 - PLEASE CHECK THE APPROPRIATE  
REPLY TO EACH QUESTION  
2 - WHERE \* APPEARS, RANK 1, 2 & 3  
(EXCEPT WHERE NOTED OTHERWISE)  
IN ORDER OF IMPORTANCE.

1. HOW MANY YEARS HAVE YOU BEEN POWER  
TOBOGGANING?

\_\_\_\_\_ years

2. DURING WHICH WINTER MONTHS DO YOU USE  
YOUR POWER TOBOGGAN? (CIRCLE THE  
APPROPRIATE MONTHS)

November      December      January  
February      March      April

3. WHEN DO YOU USUALLY GO POWER TOBOGGANING?

- ☐ mainly on weekends  
☐ mainly during mid-week  
☐ both mid-week and weekends  
☐ all school holidays and weekends  
☐ other ; specify \_\_\_\_\_

4. HOW MANY DAYS DURING THE COURSE OF THE  
WINTER TO YOU GO POWER TOBOGGANING?

\_\_\_\_\_ days

5. \* DO YOU MAKE THE MOST USE OF YOUR POWER  
TOBOGGAN IN THE

- ☐ city  
☐ mountain-foothill region  
☐ lakes region to the northeast  
☐ other (specify) \_\_\_\_\_

6. WHAT TYPE OF OVERNIGHT ACCOMMODATION DO  
YOU USE, IF ANY?

7. \* WHAT DO YOU LIKE ABOUT THE AREA YOU  
VISIT MOST FREQUENTLY?

- ☐ scenery  
☐ distance and time from home  
☐ facilities provided  
☐ ease of access  
☐ other (specify) \_\_\_\_\_

8. HOW LONG HAVE YOU BEEN GOING TO THIS AREA?

\_\_\_\_\_ years

9. \* DO YOU GET THE MOST ENJOYMENT FROM  
USING YOUR POWER TOBOGGAN ON

- ☐ frozen lakes  
☐ open fields  
☐ rough wooded areas  
☐ other (specify) \_\_\_\_\_

10. WHAT DEPTH OF SNOW DO YOU PREFER FOR  
ENJOYABLE POWER TOBOGGANING?

\_\_\_\_\_ feet

11. \* WHAT TYPE OF SNOW DO YOU PREFER?

- ☐ soft loose snow  
☐ fresh snow over a firm base  
☐ hard packed snow  
☐ snow drifts

12. BETWEEN WHAT TEMPERATURES ARE YOU  
WILLING TO POWER TOBOGGAN?

high \_\_\_\_\_°F      low \_\_\_\_\_°F

13. HOW STRONG MUST THE WIND BE TO PREVENT  
YOU FROM POWER TOBOGGANING?

- ☐ light \_\_\_\_\_ to \_\_\_\_\_ m.p.h.  
☐ moderate \_\_\_\_\_ to \_\_\_\_\_ m.p.h.  
☐ strong \_\_\_\_\_ to \_\_\_\_\_ m.p.h.

14. DO YOU HAVE A SUMMER COTTAGE IN ALBERTA?

☐ yes      ☐ no

IF YES, PLEASE IDENTIFY LOCATION  
\_\_\_\_\_

15. IS YOUR COTTAGE WINTERIZED?

☐ yes      ☐ no

16. DO YOU USE THE COTTAGE IN WINTER?

☐ yes      ☐ no

17. HOW MANY DAYS DO YOU USE IT IN WINTER?

\_\_\_\_\_ days

18. DO YOU USE IT FOR POWER TOBOGGANING?

☐ yes      ☐ no

19. \* WHICH OF THE FOLLOWING DO YOU PART-  
ICIPATE IN MOST FREQUENTLY WHILE  
POWER TOBOGGANING? (RANK AS MANY AS  
POSSIBLE)

- ☐ trail riding  
☐ overnight camping  
☐ hunting  
☐ ice fishing  
☐ racing  
☐ skiing  
☐ joy riding  
☐ other (specify) \_\_\_\_\_

20. FOR AN AVERAGE POWER TOBOGGANING TRIP  
HOW FAR DO YOU TRAVEL BY CAR?

\_\_\_\_\_ miles      \_\_\_\_\_ hours

21. HOW FAR WOULD YOU BE WILLING TO TRAVEL  
TO GO POWER TOBOGGANING

for a day \_\_\_\_\_ miles      \_\_\_\_\_ hours  
for a weekend \_\_\_\_\_ miles      \_\_\_\_\_ hours

22. HOW ARE THE WINTER ROAD CONDITIONS TO  
THE AREAS YOU MOST FREQUENTLY USE?

- ☐ excellent  
☐ satisfactory  
☐ unsatisfactory

IF UNSATISFACTORY, PLEASE SPECIFY  
\_\_\_\_\_

23. HOW DO YOU POWER TOBOGGAN MOST OFTEN?

- ☐ one person alone  
☐ with family  
☐ with friends  
☐ organized group (troop, club, etc.)





## APPENDIX II

### THE POWER TOBOGGAN

The first snowmobiles commercially produced were those manufactured by the Ford Motor Company for Admiral Byrd's 1928 expedition to the South Pole. These machines used the body of an automobile but the front tires were replaced with skis and chains were placed over two sets of rear wheels.<sup>1</sup> They bear little resemblance to the present snowmobile of the two passenger type.

Credit for the invention and manufacture of the first successful snowmobile is now given to two men who worked simultaneously and independently; Joseph-Armand Bombardier of Valcourt, Quebec, and Carl J. Eliason of Wisconsin. In 1927 Eliason patented his machine. His "motor-toboggan" had ski-like front runners, a rear drive track and was capable of carrying two passengers.<sup>2</sup> In 1926 Bombardier developed a wind-sled powered by a Ford engine and driven along on the snow by an airplane propeller. Skis were placed at the front for steering.<sup>3</sup> Bombardier eventually replaced the propeller

---

<sup>1</sup>Patrick K. Snook, "Snowmobile Buyer's Guide," Field and Stream, No. 1968, Vol. LXXIII, No. 7, p. 48.

<sup>2</sup>Outboard Marine Corporation of Canada, Ltd., Snow Cruisers Start Sports Boom, Press Release, Peterborough, Ont., circa 1962, mimeographed copy, pp. 1-2.

<sup>3</sup>John W. Hethrington, The Snowmobile: What Makes It Go, What Makes It Grow, an address to the Society of Automotive Engineers, Detroit, Nov. 1967, pamphlet, pp. 5-6.





with tracks. The first commercial snowmobile sold by Bombardier in 1936 was a large thirty-passenger machine designed for carrying troops. After World War II, the company marketed their vehicles to winter resorts and ski lodges and various logging companies in Quebec.

It was not until the winter of 1959-60 that the first snowmobile, of the popular type we know today, was introduced by Bombardier. In principle, the present vehicle is similar to Eliason's first machine although the design has been altered somewhat. Streamlined styling and more dependable and powerful engines have been added. New front skis and turning mechanisms have improved the handling and maneuverability of the vehicles.

The snowmobile has properties of both an automobile and a boat, depending upon the conditions of the snow. Track width and length are calculated to achieve the proper displacement of the weight of the vehicle on the snow. The original design concept of the snowmobile with skis, gas tank, engine, and driver, arranged in that order, is still used by most manufacturers. As a safety feature, some manufacturers have placed the gas tank at the rear, away from the engine area and the driver.

The lower half of the body is made of pressed steel and is boat shaped, particularly in front, so it will slide up over the snow. The gas tank is generally designed as a part of the frame to lower the center of gravity and thus give better balance. A cowl, usually made of fiber glass, covers the upper front of the vehicle. The



seat is incorporated into the housing for the top of the track. A headlight, whindshield, dashboard, backrest at the rear, and some secondary controls such as the choke and lightswitch complete the typical snowmobile.

Most models have a two cycle engine, although one manufacturer has one and three cycle engines as well. The two cycle engines apparently are easier to start in cold weather as there is no reserve of oil; they have fewer working parts; they will not burn out if operated on their sides; and they will produce more power than a four cycle engine of equal weight. The track is either of corrugated rubber alone or corrugated rubber with steel cleats.

The drive power is transmitted from the engine to a secondary sprocket by a flexible belt. A simple variable-pulley system serves as a transmission, automatically giving a low gear ratio at low or starting speeds and increasing as the speed of the machine increases. When the engine is running at idle speed, a centrifugal clutch automatically disengages the drive train. A link-chain system connects the sprocket with the two front bogie wheels which support the track. A bicycle-type handle bar steers the steel skis and also carries the grip controls for the throttle and brake. The machine is steered with skis and also by the riders shifting their weight.

Specifications of snowmobiles vary greatly with each model. The length of the vehicle with skis varies from 100 to approximately



110 inches. Track width varies from 12 to 30.5 inches; height with windshield from 40.5 to 49.5 inches. Fuel capacity varies from 1.5 to over 6 American gallons. Engine power ranges from 7 to 75 horsepower; engine displacement from 147 to 744 c.c. The weight of the machine varies from 215 to 365 pounds. Speeds up to 100 miles per hour can be achieved with a 75 h.p. engine; a 14 h.p. engine reaches speeds of 35 m.p.h. The prices range from \$300 to \$4000. Options include electric starter, reverse gear, under seat storage. Accessories are numerous; for example, sleds, caddie trailer, wheels to replace front skis, auxiliary gas tank, kickstand, clothing, safety equipment, first aid kits and survival packs.



# APPENDIX III

## TABULATED RESPONSES

### 1. How many years have you been power tobogganing?

Years	No. of Respondents
1	17
2	30
3	13
4	18
5	4
7	3
	85

### 2. During which winter months do you use your power toboggan?

Months	No. of Respondents
Nov.	51
Dec.	82
Jan.	80
Feb.	80
Mar.	71
Apr.	29
	84

### 3. When do you usually go power tobogganing?

Category	No. of Respondents
Mainly on weekends	34
Mainly during mid-week	-
Both mid-week and weekends	36
All school holidays and weekends	14
Other, specify	-
	84

### 4. How many days during the course of the winter do you power toboggan?

Days	No. of Respon.	Days	No. of Respon.
3	2	27	1
5	1	30	9
7	2	32	1
10	3	33	1
15	7	35	3
16	1	40	10
18	1	45	2
19	1	50	5
20	10	60	3
21	1	72	1
24	1	75	1
25	12	100	1
			80





5. Do you make the most use of your power toboggan in the

Category	No. of Respondents
Countryside	23
City	20
Lakes to northeast	14
Mountain-foothills region	6
Lakes to north and west	6
Lakes to south	5
Race tracks	3
	77

6. What type of overnight accommodation do you use, if any?

Type	No. of Respondents
Truck or camper trailer	6
Cabin or cottage	20
Motel or hotel	11
Tent or outdoors	7
Private home	1
Friends and relatives	1
	40

7. What do you like most about the area you visit most frequently?

Category	No. of Respondents
Scenery	11
Distance and time from home	24
Facilities provided	6
Ease of access	16
Other: cottage	4
solitude	5
escape from city	2
	68

8. How long have you been going to this area?

Years	No. of Respondents
1	18
2	27
3	10
4	10
5	5
7	2
9	1
10	3
14	1
20	1
40	1
	79



9. Do you get the most enjoyment from using your power toboggan on

Category	No. of Respondents
Frozen lakes	14
Open fields	18
Rough wooded areas	26
Other: rough open	4
race tracks	2
old trails	2
mountains	2
cross country	1
all areas	1
	70

10. What depth of snow do you prefer for enjoyable power tobogganing?

Depth in feet	No. of Respondents
0.5	4
1.0	23
1.5	20
2.0	24
2.5	3
3.0	6
4.0	4
	84

11. What type of snow do you prefer?

Category	No. of Respondents
Soft loose	6
Fresh snow over firm base	47
Hard packed	15
Snow drifts	9
	77

12. Between what temperatures are you willing to power toboggan?

High (F)	No. of Respon.	Low (F)	No. of Respon.
10	1	-40	2
20	8	-30	2
25	5	-20	12
27	1	-16	1
28	1	-15	2
30	18	-10	14
32	5	-5	3
35	14	-1	1
40	19	10	14
45	3	15	6
48	1	20	9
50	4	30	3
	80		69



13. This question was not answered satisfactorily and was therefore not analyzed.

14. Do you own a cottage in Alberta?

Yes 24 No 61

Location	No. of Respondents
Pigeon Lake	3
Sylvan Lake	1
Edson	2
Alberta Beach	3
Long Lake	1
Lac Ste. Anne	2
Amisk Lake	1
Lake Wabamun	3
Seba Beach	2
Skeleton Lake	1
Athabasca region	1
Gull Lake	1
Cooking Lake	1
Fork Lake	1
Lac La Nonne	1
	24

15. Is your cottage winterized?

Yes 19

16. Do you use the cottage in the winter?

Yes 18

17. How many days do you use it in the winter?

Days	Number of Respondents
3	2
5	1
7	1
12	2
15	1
17	1
20	3
25	2
45	1
50	2
	16

18. Do you use it for power tobogganing?

Yes 18



19. Which of the following do you participate in most frequently while power tobogganing?

Category	No. of Respondents
Trail riding	10
Overnight camping	-
Hunting	5
Ice fishing	2
Racing	2
Skiing	-
Joy-riding	42
Other	-
	61

20. For an average power tobogganing trip how far do you travel by car?

Miles	No. of Respon.	Miles	No. of Respon.
1	1	34	1
2	2	35	3
3	1	40	3
5	3	45	2
8	1	48	1
10	9	50	5
12	1	60	7
15	1	65	3
17	1	70	1
20	10	100	11
23	1	120	1
25	1	130	1
28	1	150	2
30	6	200	1
			81

21. How far would you be willing to travel to go power tobogganing for a day?

Miles	No. of Respon.	Miles	No. of Respon.
8	1	50	21
10	3	55	1
15	1	60	7
20	6	65	1
23	1	80	1
25	3	100	9
30	8	150	2
35	2	200	1
40	5	350	1
45	3		77





for a weekend?

Miles	No. or Respon.	Miles	No. of Respon.
15	1	120	1
20	1	150	5
23	1	200	19
30	1	240	3
50	2	250	5
60	2	270	1
75	1	300	4
80	1	400	1
100	16	500	1
			69

22. This question was not answered satisfactorily and was therefore not analyzed.

23. How do you power toboggan most often?

Category	No. of Respondents
One person alone	13
With family	33
With friends	21
Organized group	1
With family and friends	17
	85

24. What is the usual number of people in your party for each age group?

18 yr. & over . between 12 & 18

No. in party	No. of Respon.	No. in party	No. of Respon.
1	8	1	13
2	25	2	16
3	6	3	5
4	17	4	3
5	3	5	2
6	8	6	3
7	-	10	1
8	6		
10	1		

under 12

No. in party	No. of Respon.
1	8
2	25
3	6
4	17
5	3
6	8
8	6
10	1



25. What is your age?

Years	No. of Respon.	Years	No. of Respon.
20	1	39	2
21	1	40	10
22	1	41	1
23	2	42	2
25	1	43	4
26	3	44	2
27	2	45	6
28	2	46	2
30	4	47	3
31	3	48	2
32	1	49	3
33	2	52	1
34	2	55	4
35	8	56	1
36	1	60	2
37	1	62	1
38	3		84

Occupation?

Category	No. of Respon.
Managerial	25
Professional & Technical	12
Clerical	2
Sales	5
Service & Recreation	1
Transport & Communication	8
Farmers & Farm Workers	1
Miners, Quarrymen & Related Workers	1
Craftsmen, Production Processing	24
Laborers	2
Housewife	1
Retired	1
	83

Family size?

Size	No. of Respondents
1	9
2	6
3	8
4	19
5	17
6	13
7	4
8	3
	79



26. What level of education have you attained?

Level	No. of Respondents
Elementary	15
High School	41
College or University	15
Technical or Vocational	13
	84

27. Have you been brought up in a

City	24
Small town	18
Farm	41
Overseas(city)	2
	85

28. Which income category best indicates your gross family income?

Category	No. of Respondents
\$ 2500 & under	1
\$ 2501 - 4000	
\$ 4001 - 5500	3
\$ 5501 - 7000	13
\$ 7001 - 8500	11
\$ 8501 - 10000	15
\$10001 - 12500	10
\$12501 - 15000	7
\$15501 & over	20
	80

29. Could you estimate the cost of a typical day of power tobogganing for your group?

Cost (\$)	No. of Respon.	Cost (\$)	No. of Respon.
.75	1	10.00	15
1.00	1	12.00	2
2.00	2	12.50	1
2.50	1	15.00	6
3.00	4	20.00	8
4.00	5	25.00	8
5.00	13	30.00	1
6.00	2	35.00	1
7.00	2	40.00	1
8.00	2	60.00	1
9.00	1	80.00	1
			79



30. Would you like to use your power toboggan in

	Yes	No	Total
National Parks	73	7	80
Provincial Parks	73	8	81
Municipal Parks	72	7	79

31. Do you think power toboggans should be permitted in

	Yes	No	Total
National Parks	72	8	80
Provincial Parks	76	5	81
Municipal Parks	73	6	79

32. Would you prefer to

No. of Respondents

Stay in designated areas	24
Stay on marked trails	18
Roam freely	36
	78

33. Are any of your friends or relatives thinking of buying a power toboggan?

Yes	58
No	18
	76

34. What contributes the most to making your trip successful?

No. of Respondents

Good weather	38
The people	14
Proper machine functioning	11
Economy of sport	1
Skill and sportsmanship	3
Proper clothing	3
No restrictions	22
Facilities for children	2
Keeps children occupied	1
Accommodations at site	1





## Comments of Respondents

Insurance rates too high.

Licence fees too high.

Need for more "designated areas" near and in city.

Restrictions should be no greater than now.

Safety education, proper clothing, and safety helmets recommended.

The toboggan makes winters shorter and more enjoyable.

Fines for speeding or careless driving necessary; more regulations needed.

Would like National Park use.

Over-regulated in local parks for adult use.

Street use by adults should be permitted.

Restrictions a waste of time. "These machines are designed for those who like to 'get away from it all'."

Age limit for operators 16 years and over.

Need more city areas.





71F-242

SPECIAL COLLECTIONS

UNIVERSITY OF ALBERTA LIBRARY

# REQUEST FOR DUPLICATION

I wish a photocopy of the thesis by

Sameil, I (author)  
entitled

The copy is for the sole purpose of private scholarly or scientific study and research. I will not reproduce, sell or distribute the copy I request, and I will not copy any substantial part of it in my own work without permission of the copyright owner. I understand that the Library performs the service of copying at my request, and I assume all copyright responsibility for the item requested.

[illegible]





**B29999**